# MOTOR AGE







# SOFT PRESSURE DOES IT!

Rebores need rings designed especially for replacement—soft pressure rings, like Steel-Vents. That's why Hastings Steel-Vent piston rings rate so high with motor specialists everywhere—in rebores as well as extreme tapers.





17 out of the 18 makes of automobiles have one or more parts made by BORG-WARNER

Borg-Warner supplies these and other essential operating parts and products for the automotive industry:

TRANSMISSIONS • TIMING CHAINS
OVERDRIVES • SYNCHRONIZERS • CLUTCHES
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FLUID COUPLINGS • CARBURETORS
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LLS

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PATHFINDER has influence on Main Street, too. News weekly edited for intelligent alert families in the smaller cities and towns, growth is rapid and consistent. And what's more to the point, PATHFINDER does well for advertisers. Brings quick response from readers. PATHFINDER'S influence in prosperous Main Street homes is a matter of record.

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YES SIR, I was there, right from Pearl Harbor to V-J. I helped the boys do their jobs...all over the map!

You folks on the home front sure were swell holding down your gripes about shipments and such, during the days when Ol' Permatex was up to its ears in Government Orders.

But from now on I'm back at the Plant, pushing out those "can't-be-beat" Permatex Products you've waited for so long.

Well, I guess that does it. Just want to say "Hi" to my many friends, both old and new...
I'll be seeing you!

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FEBRUARY, 1946

AGE

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Y ou get a lot more than one of the best identification signs in all America when you put up this famous symbol of Texaco Dealers.

Behind this outstanding sign, is an alert, nation-wide organization which provides its Dealers with top quality petroleum products.

Supporting its Dealers and products is Texaco advertising . . . popular radio programs . . . attractive advertisements in leading magazines, newspapers, and farm journals . . . thousands of billboards . . . all signed "TEXACO DEALERS" . . . advertising that goes into every community, your community.

In addition, Texaco offers you all kinds of sales helps—window displays, calendars, book matches, post cards, just to mention a few—designed to work for you.

That's why we say Texaco Dealers are busy dealers!

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A Great Line-up
for
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FIRE-CHIEF and Sky Chief GASOLINES • TEXACO and HAVOLINE MOTOR OILS • MARFAK CHASSIS LUBRICATION REGISTERED REST ROOMS • ALL NIGHT SERVICE



X-PLUS
PISTON RINGS



To restore new car pep and power to Worn Motors is the job of the Nation's Automotive Repairmen. To do the best job you can, to satisfy your customers install the Modern, New Style Moog X-Plus Piston Rings and give worn motors FULL POWER.

Ask your jobber or write for the FULL POWER Story today.



FEBRUARY, 1946

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### CANOPY AND SIDE CURTAINS



It was "tops" in 1905, yet would make a mighty poor showing against any of today's models. And it's just as far a cry from the Rambler's old-time, inflexible, gravity fuel feed, to the responsive efficiency

# ALLIES FOR PROPERTY OF THE PUMPS

Properly hardened rocker arms, the hardening and precision grinding of rocker arm pins and correct spring tensions are among the important factors in AIRTEX Fuel Pump efficiency. Others of equal importance are the uniformity and accuracy of body castings, close tolerances on machined parts, the famous AIRTEX diaphragm and the rigid testing of all diaphragm assemblies for gas-tightness.

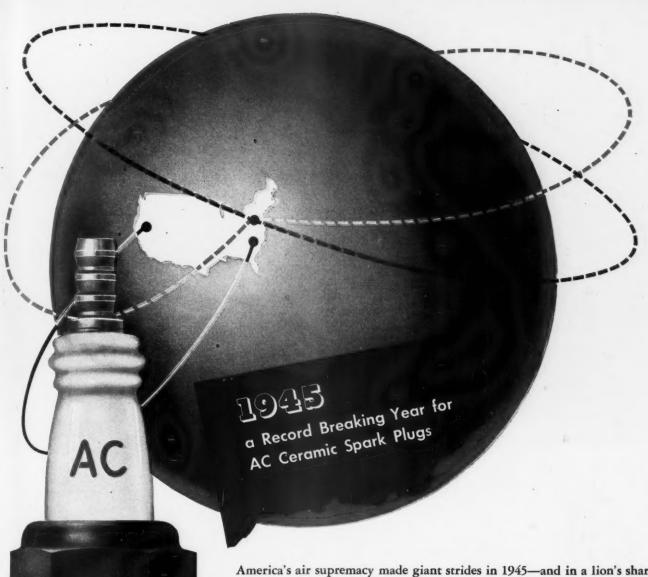
Assembled with AIRTEX Diaphragms Guaranteed for 50,000 Miles



"Your profits climb with the AIRTEX Line"

AIRTEX AUTOMOTIVE CORPORATION, FAIRFIELD, ILL.





America's air supremacy made giant strides in 1945—and in a lion's share of these brilliant accomplishments, AC Ceramic Aircraft Spark Plugs played a vital role.

The year was less than a month old when the AC-equipped Stratocruiser (C-97) lowered the transcontinental record formerly held by the Constellation (also fired by AC Ceramic plugs).

September 19, three Army Superfortresses landed in Chicago to capture the non-stop record from Japan. Their 12 Wright engines were also equipped with AC's.

Then the Globesters, ATC's Pratt & Whitney-powered Skymasters, inaugurated the world's first scheduled global flights, finishing the maiden run October 4. AC aircraft plugs had a part in this epochal flight.

November 2, four Superfortresses completed a still longer non-stop run from Japan, 6554 miles to Washington, D. C. AC Ceramic Aircraft Spark Plugs fired all 16 engines during the 27½-hour trip.

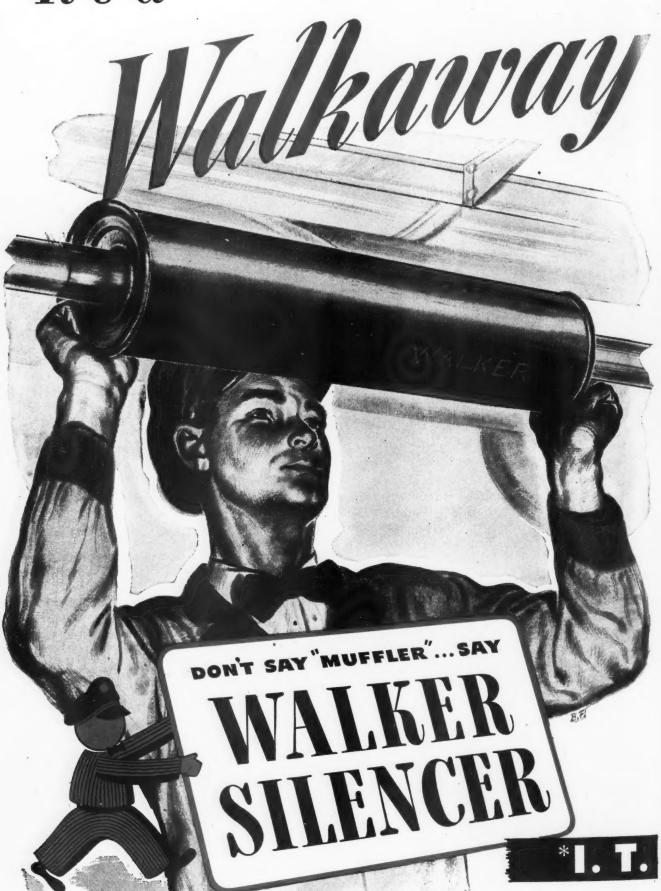
November 19-20, a single B-29, stripped for an endurance run, made a new world's non-stop record of 8198 miles from Guam to the nation's Capital. AC's aircraft plugs sparked that remarkable achievement.

Ceramic aircraft spark plugs owe their American origin and development to AC. This is only natural because, since its founding in 1908, AC has pioneered and developed most of the basic improvements in ceramic automotive spark plugs. This leadership is recognized by engineers who have specified AC Spark Plugs as original equipment in 2 out of every 4 cars, trucks, and buses built in America since 1932.

AC leadership is also demonstrated by the fact that—for utmost reliability, public acceptance, and repeat business—the trade looks to AC.

AC SPARK PLUG DIVISION . GENERAL MOTORS CORPORATION

It's a



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MOTOR AGE

# with Walker



# DEALERS VOTE WALKER SILENCERS EASIEST REPLACEMENT MUFFLER TO INSTALL

"Individual Tuning" assures perfect fit in every detail...not merely overall dimensions. Shell diameters and lengths...size and shape of headers, brackets and flanges all meet installation specifications exactly. Saves Time! Saves Tempers! Increases Profits!

• In a recent independent survey, dealers everywhere chose Walker Silencers as the easiest replacement muffler to install—3 to 1 over the nearest other brand. From coast-to-coast... from experienced service men who know their mufflers and insist upon the best, comes this overwhelming endorsement of Walker "Individual Tuning."

From the very beginning Walker has recognized the importance of proper fit for ease and speed of exhaust system service... for greater volume and profit to you. That is exactly why Walker "Individually Tuned" Silencers are built to a standard

of performance instead of a standardized construction—for only through "Individual Tuning" can the individual specifications of sound control, back pressure and installation details be adequately and accurately met for each make and model of car. That is the Margin of Difference that distinguishes Walker Silencers from all other replacement mufflers.

So don't say "Muffler" to your jobber salesmen
—Say Walker Silencer. It pays to be identified
with the leader.

WALKER MANUFACTURING COMPANY OF WISCONSIN
RACINE, WISCONSIN

Also Makers of Walker Jacks and Electric Lifts

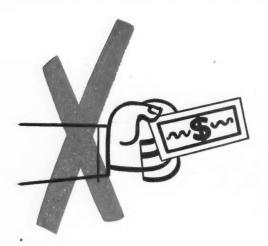
#### MAKES THE DIFFERENCE

"INDIVIDUALLY TUNED" TO EACH MAKE AND MODEL OF CAR

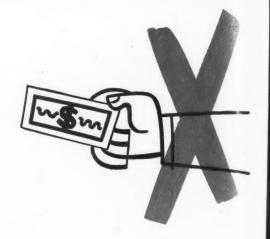
FEBRUARY, 1946

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# Why settle for

# 1 market

out of 3?

THE answer is you don't have to—if you have complete coverage of the market.

That's why the Chrysler-Plymouth dealer is in the driver's seat. He alone in the industry has a great car to sell in *all three* price classes.

With the handsome new Chrysler cars appealing to medium priced buyers as well as the high priced field and the popular-priced Plymouth for mass sales, he operates under the broadest range of prices in the industry. He competes at every level, in every market. And he has help . . .

... the help of exceptional owner loyalty ... of a great war record ... of Chrysler's famous new gyrol Fluid Drive and many other achievements of Chrysler's engineering leadership.

Any wonder that the Chrysler-Plymouth dealer faces the future with complete confidence?

Perhaps you have the qualifications for a Chrysler-Plymouth dealership. We'd be glad to discuss it with you.

# CHRYSLER

DIVISION OF CHRYSLER CORPORATION





When there's ETHYL in the tank...set the timing for best performance!

ETHYL CORPORATION... Chrysler Building, New York 17, N. Y.

FEBRUARY, 1946

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# R.S.D. PLAN Steps



# AUTO-LITE REGISTERED SERVICE DEALER

Advantages of being a Registered Service Dealer

#### REGISTERED SERVICE

You become an officially registered Auto-Lite dealer—you are on the special list to receive important mailings including an initial shipment of brilliant point of sale advertising.

#### CONTRACT PRICE

You take advantage of the special price available only to Auto-Lite RSD dealers. Greater profit and larger volume can both be yours when you sign an Auto-Lite RSD contract.

#### ADEQUATE INVENTORY

You at all times are able to fill your customer's wire and cable requirements on popular makes of cars—build your reputation for quality products and quick, dependable service.

#### NATIONAL ADVERTISING

You display the Auto-Lite RSD sign—tie-in with Auto-Lite's great Dick Haymes radio show, powerful magazine advertising, highway signs and the exclusive AAA program.



AUTO-LIE

# BUSINESS



Auto-Lite furnishes spark plug wires in both copper and in Steelductor, an automotive type of the 7 strand stainless steel conductor made famous through its use by fighting planes on every battlefront. Available on Spools or convenient ready-to-install sets complete with terminals and nipples to fit all popular cars.

### Low Tension Wire

Auto-Lite wire and cable is a complete line, for every automotive use. Wire for lighting and other low tension circuits is available in many shapes, sizes and insulation materials. Write for the Auto-Lite catalogue, Form C-541, for detailed information on wire and cable for every automotive need.





WITH ANTI-CORRODE TERMINAL

Properly installed, Auto-Lite Battery Cable with the revolutionary Anti-Corrode Terminal resists corrosion that builds resistance and restricts proper current flow to the starter and other electrical units. This type battery terminal is standard equipment on 15 makes of cars.

THE ELECTRIC AUTO-LITE COMPANY TORONTO, ONTARIO TOLEDO 1, OHIO

TUNE IN THE AUTO-LITE RADIO SHOW STARRING DICK HAYMES, EVERY SATURDAY NIGHT, 8:00 P.M.-E.S.T. ON CBS

FEBRUARY, 1946

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# MOTOR AGE

With Which Is Combined AUTOMOBILE TRADE JOURNAL

#### FOR AUTOMOTIVE SERVICEMEN

Vol. LXV, No. 3

February, 1946

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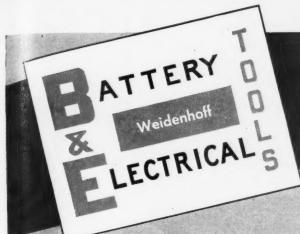
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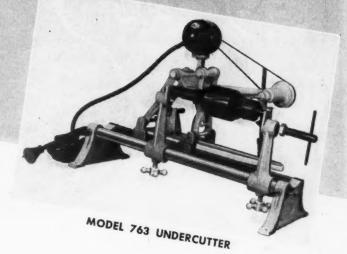
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Chargers, Magneto Testers, Test Benches,

Electrical Testing and Service Equipment.



**MODEL 701 GROWLER** 



Speed up electrical service with these four pieces of typical equipment in the Weidenhoff B&E line. They'll lick those tough service problems on generators, starting motors, armatures and handle more efficiently those every-day jobs encountered in electrical service.

MODEL 701 GROWLER—Double wound meter type. Indicates defective wiring, nature of defect, location of troubles, etc. Handles armatures not possible in other growlers.

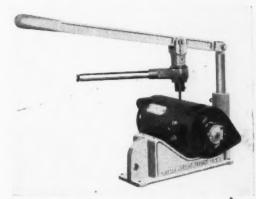
MODEL 763 UNDERCUTTER—Heavy duty type. Undercuts commutators up to 6 in. diameter. Centers adjusted to 18 in. Handles all types armatures.

MODEL 973 POLE PIECE SCREW DRIVER—Instantly removes or replaces pole piece screws without damaging parts. Ratchet handle operates right or left. Ruggedly built for hard service:-

MODEL 967 PULLER PRESS—Quick acting arbor and puller press for removing and replacing bearings, bushings, races, caps, slip rings, etc. Saves time and prevents breakage.

Weidenhoff equipment is a money-maker in your shop.

Write for information on the complete B & E line.



MODEL 973 POLE PIECE SCREW DRIVER



gr. 1424. 10 1, 1243. 14, 100al St.

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oard AGE WEIDENHOFF

CHICAGO 24, ILLINOIS



MODEL 967 PULLER PRESS

FEBRUARY, 1946

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# For Blow-by Control, too



# of Sealed Power Piston Rings



ANDIVIDUALLY ENGINEERED Sure, oil waste is bad and oil rings must be right for oil control. BUT blow-by control is important, too, and that means compression rings have to be right. With Sealed Power Individually Engineered Ring Sets, you are sure of balanced performance. Each set is selected from twenty-six (26) basic designs of rings. Whatever the make, model, or degree of cylinder wear, there's a Sealed Power Set specifically engineered to do the best possible job. Sealed Power has been refining these sets for six years, has been producing rings for car, truck and engine manufacturers 34 years. For balanced performance, re-power with Sealed Power motor parts. Sold by America's leading distributors. Sealed Power Corporation, Muskegon, Michigan and Windsor, Ontario.

Piston Rings, Pistons, Cylinder Sleeves, Piston Pins, Valves, Water Pumps; Bolts, Bushings, Tie Rods, Front End Parts.

## **SEALED POWER PISTON RINGS**

BEST IN NEW CARS! \* BEST IN OLD CARS!

Keep Your War Bonds! Get \$4 for \$3!



## NEWS BULLETIN

★ Willys is readying utility car for announcement this spring.

★ Starting battery inventories are reaching the vanishing point with no immediate relief in sight.

Production of tire casings reached a rate of 44,200,000 passenger car casings per year. Total for the first 11 months of last year was 23,362,420 compared to 52,778,995 during the first 11 months of 1941.

★ Ford is still furnishing most of the production, with the rest of the companies, excepting G.M., picking up momentum. Ford production is expected to reach 80,000 units per month within two months.

Chrysler Division has 3,045 dealers as of January 1.

★ Look for an announcement of a rear engine job to be built by a new company in the Dodge Chicago plant. Car is designed by Preston Tucker.

Kaiser-Frazer have arranged with R.F.C. to occupy Willow Run for ten years.

A.A.A. reports that <u>85 per cent of its membership</u> in 650 affiliated clubs are <u>planning motor tours for the coming</u> summer.

 $\bigstar$  A complicated world surplus of rubber is envisioned by Goodrich since potential world production of 3,000,000 tons annually is twice the estimated annual consumption.

Bus speeds of 100 m.p.h. on special highways are seen as strong possibility in the near future.

Demand for surplus motor vehicles far exceeds the supply.

★ 0.P.A. is going to survey prices charged in automobile parking lots.

The U. S. Foreign Economic Administrator recommends that the German automotive industry be permitted to produce limited numbers of cars and light trucks.

Chrysler Corp. paid year-end bonuses totaling \$3,245,715 to 41,316 hourly rated employees in lieu of vacation pay.

There will be no more bond drives, but the Treasury will continue to sell E, F and G bonds.

★ Steel needs \$5 to \$7 a ton increase to cover  $18\frac{1}{2}$  wage boost.

Henry Ford II states they are now losing \$300 per car and calls for prompt removal of price control.

AGE



### Public Is Boss in Final Analysis

point that is so often overlooked when discussing labor management and prices, was emphasized by Henry Ford II in his address before the Annual Meeting of the S. A. E., is that the public is the boss, not labor, not management. Of equal interest was his statement that each day the assembly lines stand still costs the company \$400,000, and at the present price of cars, they lose \$300 on each car.

## Government Price Policy Indicating Flexibility

CCASIONALLY there crops into dispatches, coming from Washington, a bit of news that indicates that possibly some degree of flexibility may be allowed to creep into the Administration's price policy. For instance, John Small, C. P. A. director, said that maintenance of price ceilings is meaningless, if there are no available goods. Other White House advisers make off the record statements on the possibility of getting more votes if ceilings or controls are released. Neither thought could be classed as profound, but both have been accepted as axiomatic by the public for a long time.

#### Taxes Add to Cost of Living

HEN discussing the pros and cons of price ceilings, and the cost of living, more emphasis should be put on the fact that, while legal prices of many commodities have remained stationary, taxes have continued to rise, and taxes are very definitely a part of the

cost of living. In other words, butter may be set at 75 cents a pound, but the taxes required to pay the subsidies for maintaining that price would bring the actual price well above that which would exist in a free economy.

#### The Customer Is Almost Always Right

BASED on experience with 500,-000 regular customers of Marshall Fields, in Chicago, H. M. McBain, president of the company, states 85 to 90 per cent of complaining customers are right, and that less than one per cent are bent on "gyping" the merchant. Car dealers and independents can profit by this experience of one of the world's largest department stores by listening carefully to their own customers' gripes. It pays dividends to operate on the fact that the customer is always right.

#### Shortage of Lead to Cut Battery Production

A LLOCATIONS of lead to automotive battery manufacturers by CPA will provide only enough lead to produce 16,200,000 batteries, as compared with 1945 production of 19,200,000. Based on first quarter allocations, output in 1946 will be about 78 per cent of 1945 production. The shortage of lead has also resulted in a cut of about the same proportion in tetraethyl lead.

Exorbitant finance charges in the state of Pennsylvania have prompted the state legislature to investigate the practices of numerous finance companies. Read Claude S. Klugh's illuminating article on the subject of finance charges on page 20 of this issue.

## Public Opinion Awry on Company Profits

THE public has some queer ideas about automobile company profits, according to a recent public opinion survey. The average person questioned thought the companies made a profit of 24 per cent, with some guesses ranging up to 31 per cent. Actually, profits made by the industry averaged less than four per cent of sales in wartime, and eight per cent in peacetime. The public generally thought that 12 per cent net profit would be fair.

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#### Tire Picture Not as Black as Painted

HEN tires were removed from rationing January 1, the daily press was filled with direful predictions that it would be many months before the needs of the general public would be filled. While it is true that it is still not possible for the car owner to walk into any shop, or store, and come out with a set of tires, conditions are not nearly as bad as predicted. Production for replacement purposes during the first 11 months was 22.167.292 casings as compared to 33,105,070 casings in 1941. At the same time 886,601 casings were produced for original equipment which is far in excess of the number of cars and trucks produced in that period.

#### Demand for Surplus Vehicles Exceeds Supply

FROM Washington comes the news that the demand for surplus motor vehicles far exceeds available, as well as future, supplies. Current estimates are that



veteran demand will never be filled even if all surplus vehicles were sold to veterans. While volume production of civilian trucks will be reached shortly after the termination of the strikes, it will require many months to meet the demand as 88,000 veterans have received priority certificates. As an indication of the length of time required to obtain a truck through those channels, the Office of Surplus Property acquired 38,472 trucks from April 1 to October 15, 1945. Disposals amounted to 18,-268 while inventory on October 15 was 22,951.

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R AGE

#### Auto Worker's Wage Higher than Average

A N interesting commentary on the automotive strikes is that wages paid in leading automotive centers for a given job in 1945 are 26 per cent above the average paid elsewhere in the nation, according to reports from the Bureau of Labor Statistics. From 1899, wages have risen from an average of \$12.50 to \$44.53. At the same time the price of cars dropped from \$1007 in 1925, to \$798 in 1930 and a new low was reached in 1935 when the average price was \$658. It is of equal, or possibly even greater, interest immediately following that era the productivity of the workers declined. Henry Ford II points out that in 1940, one group of operations took 96 minutes, and in 1945 the same work required 128 minutes. Another group which took 1188 minutes in 1940, required five years later, 1943 minutes to perform. A third group increased from 28 to 49 minutes in the same period. Labor should consider and study that all-important factor before making any demands.

## Huge Funds Recommended for Highway Development

PPROPRIATIONS totaling \$305,838,792 have been recommended to Congress in the President's annual budget message for fiscal year 1947 for highway development, including the Federal-aid highway program carried on through State highway departments. The recommended appropriations are required to liquidate obligations incurred under the authority of previously approved contract authorizations.

Doring fiscal year 1946, \$108,-000,000 was appropriated for this purpose.

A total of \$175,000,000 was recommended for Federal-aid postwar highways authorized in the Federal-aid Highway Act of 1944. For the current fiscal year an appropriation of \$25,000,000 has been made available to start this program.

The apportionment of the first postwar fiscal year authorization of \$500,000,000 was made on January 6. Congress on October 2, 1945, released the full amount of this authorization for construction, and provided that for the purpose of the Federal-aid Highway Act of 1944, the first postwar fiscal year would be the fiscal year ending June 30, 1946. Programs under this authorization have been submitted providing for the improvement of 7,575 miles of highway.

Chrysler has announced its line of 1946 models. A number of mechanical and interior changes have been made. For complete details on the new Chrysler and mechanical innovations on the new models, see the article on page 24 of this month's MOTOR AGE.

### Another Trick From the UAW-CIO Bag

ATEST squeeze play by UAW-CIO against GM is an order to all UAW members in tool and die shops to stop work on all orders for the corporation. Much of the work now in tool and die shops is for 1946 production, and any lengthy stoppage would create delay in obtaining volume production once the strike is settled. In addition, some of the work is for 1947 models.

#### Case Bill Looms on Unions' Horizon

STRIKE Control Legislation won more than two to one (258 to 114) on a test vote in the House February 4. Members voted to consider the Case bill as a substitute for the fact-finding legislation asked by President Truman, and approved in modified form by the House Labor Committee. The Case bill would ban foremen's unions, make unions liable to injunctions, outlaw violent picketing and organized boycotts, and provide for civil suit on contract violations. What chance this much needed legislature has of passing the politicians on Capitol Hill is still anyone's guess, but it should at least cause the Unions to consider their demands more carefully.

#### To You, It Costs Twice as Much

N a most interesting letter to his Senators and Congressman, Ammco's president, Fred Wacker, points out that wages can be based on profits only when profits exist, and that if wages are based on profits, then during periods when a company operates at a loss, that wages should be reduced.

# Turning the Spotlight



#### Finance Company Purchased Lease

	Sales Price Down Payment	4	Month	Deal
\$145 23	Unpaid Balance Insurance Premium			
\$168	<b>Amount Financed</b>			
32	Finance Charges			
\$200	Contract			

#### **CONTRACT RATE 91%—SIMPLE INTEREST**

#### Finance Company Purchased Lease

	mance Company ru	i chasea mease
\$345	Sales Price	12 Month Deal
175	Down Payment	
\$170	Unpaid Balance	
12	Insurance Premium	
\$182	<b>Amount Financed</b>	This account prepa
76.	84* Finance Charges	Rate int. actually 14: because of inadequ
\$258	84 Contract	refund.

#### **CONTRACT RATE 78%—SIMPLE INTEREST**

\*of which sum the finance company received \$48.70 and the dealer \$28.14.

# on FINANCE CHARGES

Pennsylvania legislature investigates auto finance charges and companies dealing in consumer credit preparatory to enacting regulatory laws

T had to come! We could not continue charging exorbitant finance charges in Pennsylvania without an investigation of the activities of those indulging in sharp practices.

Complaints have been received by various branches of our State Government for years but the number received in the past 18 months has been entirely out of proportion to the total car and truck sales.

It was therefore inevitable that Legislature at its 1945 Session should pass a resolution authorizing its Joint State Government Commission to investigate and explore all matters connected with the operation and management of the conditions prevailing in finance companies and others in Pennsylvania dealing in consumer credit, or otherwise engaged in the business of financing motor vehicles and other articles which are sold or leased on what is commonly known as the installment plan.

This was considered a better approach to the problem than a hastily conceived law. The Committee has been

instructed to report to Legislature—probably at the 1947 Session—such nefarious, unscrupulous and improper practices as are deemed inimical to the public good and to recommend advisable legislation.

Although the power has not been invoked, the Committee has the right to issue proper subpoenas for the attendance of witnesses and the production of books, papers and records.

Shortly after Legislature adjourned, Hon. Franklin H. Lichtenwalter, efficient, hard-working Majority Floor Leader of the House of Representatives, was chosen Chairman of a sub-committee which has been actively engaged in gathering facts and information from all available sources. Representatives of large and small finance companies, banks, insurance agents, dealer associations and others, have been called to submit papers and answer questions.

As this article is being prepared, we understand arrangements are being made to call a number of those against whom complaints have been lodged at

Harrisburg for hearings.

The Committee is to be congratulated on the painstaking thoroughness exhibited to date. It is reasonable to assume that recommendations for remedial legislation will be made to the Legislature when it convenes in 1947. We can rest assured that action in protection of the public will be seriously considered. It is generally conceded that some of those engaged in retail installment sales will not voluntarily desist in their nefarious practices.

As to the financing of autos sold at retail, we all remember the days when the dealer did not receive a reserve for repossession losses. This was unfair and has long since been corrected. As a matter of fact, competition became so keen years ago that finance companies and others inaugurated the practice of paying exorbitant com-

(Continued on page 48)

#### Dealer Handled This Paper

\$1500 Sales Price 12 Month Deal
1000 Down Payment
\$500 Unpaid Balance
48.05 Insurance Premium
\$548.05 Amount Financed
218.27 Finance Charges
\$766.32 Contract

#### CONTRACT RATE 73.5%—SIMPLE INTEREST

FEBRUARY, 1946

AGE



# Showmanship Sells Service

CANNOT do much with my narrow little show window," is the negative attitude for the automotive shop owner to take. He is liable to suit the action to the word and neglect this display medium. The same decorative paper has occupied the trim so long that it is fading and dusty. The few auto accessories are equally unattractive.

In direct contrast, from the positive angle, is the shop operator who really enjoys wrestling with the space limitations of his show window. He exerts his resourcefulness. He fails to be envious of the big car dealer for he knows that an expansive window frontage means real money, what with painted backgrounds, cut-outs and other elaborate props.

The enterprising shop owner can reproduce virtually the same elaborate effects at a fraction of the cost for special occasions such as Hallowe'en, Thanksgiving, Christmas, New Years, Easter, to mention a few of the outstanding events around the calendar. How? By the miniature visualization. This bijou is quite the accepted technique in other businesses—lumber yards, realtors, insurance agents, banks, coal dealers, to mention a few of

them—faced with the selfsame show window restrictions as the service station owner.

We have inspected miserable displays which cost hundreds of dollars that failed as business producers. On the other hand, we have efficient trims that were both artistic and selling masterpieces, yet did not cost more than a few dollars to execute. It is the

gray matter back of a trim that counts. A choice few such trims are described here.

One gag, always surefire in masculine appeal, is oil flowing in an endless stream from a can, thence down a glass tube. The independent operator who reasoned that most men have a mechanical bent, played his ace with the following showcard invitation accompanying his exhibit:

"Come in tomorrow—we'll tell you how it works." There was scarcely a motorist who failed to get at the bottom of the window mystery the next day.

A live animal exhibit is justified only when directly identified with the featured product or products. One shop highlight was a small, living monkey performing gymnastics in a cage stationed in the window.

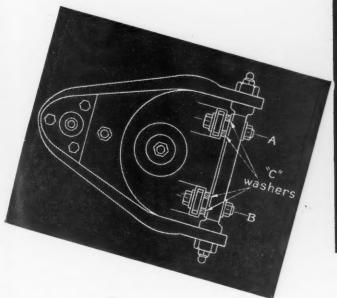
"Don't MONKEY with other shops. Insist on having your repair work done here!" proclaimed the showcard near the cage.

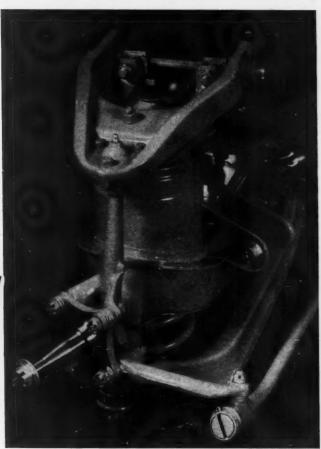
Dumping a number of large onions on the window floor along with pyramids of accessories needed an explanatory sign to interpret the gag. This was it:

"Why weep when anything goes wrong with your car? (Continued on page 66)

F

Lining up front wheels on the new Nash
"600" model is not too difficult a job
if you follow this detailed procedure





# Aligning Wheels on New Nash 600

Chance to turn a wheel, let alone wrinkle a fender, or hit a curb hard enough to knock the wheels out of line, Motor Age editors were crawling over, under and around the cars getting the low-down on lining up the front wheels. On the Ambassador, the factory evidently decided that the old system couldn't be improved on as there is no change

in the front system, but on the "600" they came up with some new ideas which, while different from other jobs, are not difficult to line up. In fact, it's a cinch—if you know how—and here's how.

On the 1941 and 1942 "600" they had those long 20 in. king pins with the tops of the units tied together across the top of the engine. Then there were a couple of rods on each side which had to be made longer or shorter when the caster or camber weren't according to Hoyle. Remember?

The new jobs are entirely different and are particularly interesting from two angles. First, the king pin doubles in brass. That is, it not only acts as the king pin but also is used as the connection between the upper and lower support arms. Secondly, the entire front suspension system forms a single subassembly directly attached to the body structure by four rubber-encased fastenings. The whole business also acts as a front crossmember and can be taken out for service or replacement.

When it comes to adjusting caster and camber, that is done simply by the removal or replacement of shims, or spacing washers and in that way the design is just like that which was first used on the Ambassador in 1941.

To change caster or camber, it is first necessary to loosen the nuts "A" and "B" so that spacing washers "C" can be changed. Each 1/16 in. washer equals 1/3 deg. Removing a "C" washer at both "A" and "B" increases camber, adding a washer at "A" and "B" reduces camber.

If you put on a washer at "B" only, you will increase caster, while adding a washer at "A" decreases caster. Another way of looking at it is that to change camber you remove or put on washers at both "A" and "B" taking care to change the same number of shims at both points. While, if it's caster that you are interested in, you will work on "A" or "B," not both of them.

Caster, according to the factory, should be ¼ deg. to ¾ deg. and camber, strange to say, can also range between those same limits—¼ deg. to ¾ deg. While we are talking about the specifications, we might as well include the toe-in, which is ¼ to 3/16 in. and the king pin inclination, which is 7½ deg. Incidentally, that looks like a hell-uva-lot-uv toe-in, but that's what the factory specs call for.

Toe-in adjustment is also a cinch, and is done by first (Continued on page 64)

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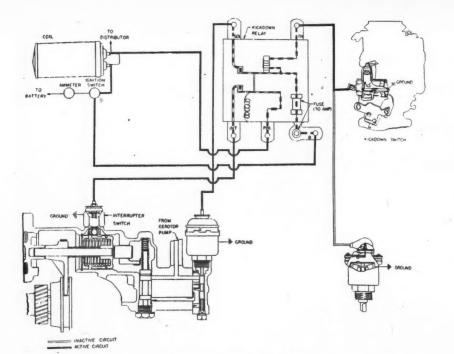
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# Chrysler

Hydraulic transmission is

Wiring diagram of the new Chrysler hydraulic transmission with kick-dawn switch operating. When the throttle is moved to the wide open position suddenly, the kick-dawn switch completes the relay coil circuit, closing the relay points. This actuates the solenoid valve, shutting off the oil pressure, permitting the large piston spring to return the shift piston and thus the synchronizing sleeve to the low position. Illustration shows the piston midway in its motion.

MPROVEMENTS that contribute to finer appearance, better performance, increased safety, added comfort and reduced operation and maintenance costs are found in the 1946 Chrysler cars, now in the hands of dealers throughout the country.

Outstanding among the mechanical improvements are the new Hydraulic transmission with the built-in control unit, the brake system with two wheel cylinders for the front brakes, and increased engine output for improved performance.

The electrical control of the hydraulic shift is accomplished by a governor and relay actuated solenoid valve. The solenoid valve controls the oil flow which shifts the transmission synchronizer sleeve. In addition, a kickdown switch attached to the carburetor permits operation of the solenoid in such a way as to shift from fourth to third (or second to low) at the driver's option.

The line comprises six models, the Royal, Windsor, and Town and Country, powered by six-cylinder engines, and the New Yorker, Saratoga and Crown Imperial, powered by eights. There are 26 body styles and an option of 13 standard colors is offered.

The front-end has been entirely redesigned. Front fenders flow into the body, producing the effect of a long one-piece teardrop design, and the rear fender has been redesigned to harmonize with the front fender, the skirt being lengthened to cover more of the wheel and thus add to the smartness of appearance.

New bumpers, finished in chrome, are used both front and rear. These bumpers are extended around the sides of the fenders to give greater protection. Bumper back bars are heavier and stronger, to permit lifting the car with the new bumper jack that is supplied. The grille is of an entirely new design, with a low, wide arrangement of horizontal chrome-plated grille bars and the addition of vertical bars in the grille openings.

The size of the safety rim wheels has been reduced

from 16 to 15 inches. This change not only makes for better riding qualities but improves the appearance of the car. Wheels are equipped with plastic white-wall wheel rings, another touch of real smartness. Tires on the sixcylinder models are 6.50 and on the eights 7.00.

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The outstanding new engineering feature is the improved hydraulic transmission, with the control unit built in. The gears have been made

larger and a non-locking feature is provided. Greatly improved acceleration has been secured by the reduction of transmission gear ratios. There are two driving ranges in this transmission, high and low. The low range is used only under most exceptional conditions, such as might not be confronted by the average motorist in a lifetime. This transmission contributes greatly to giving Chrysler's Gyrol Fluid Drive its maximum efficiency and value to the driver. The Gyrol Fluid Drive and the new hydraulic transmission are entirely separate units, although their functions are complementary to each other.

Engine efficiency has been increased by new features and improvements in those previously used. "U"-slot plated aluminum pistons have been restored, replacing the cast-iron pistons installed in the 1942 line when aluminum was a critical war material. Piston rings are also plated. A new design of the intake manifold is used to provide greater operating flexibility at low speeds, more nearly even acceleration and improved torque at low speeds.

Another improvement is a rearrangement of the wiring and accessories that permits greater accessibility in making adjustments and repairs. This is accomplished by placing the voltage regulator and starter solenoid on a bracket on hood side pan while the coil is mounted on the cylinder head.

There is a new "full-flow" oil filter, with a replaceable element. This filters all oil before it is pumped to the working parts. There is also a new type of gasoline filter, placed in the fuel tank. This filter, which was developed by Chrysler Corporation engineers for Army vehicles, makes it possible to dispense with the use of a filter at the carburetor and a sediment bowl on the fuel pump.

The new braking system has been adopted and adds greatly to the safety and pleasure of driving. Among its advantages are higher braking efficiency with lighter pedal pressure, better brake lining wear and increased effectiveness in the brakes without an increase in drum size.

# Announces 1946 Models

featured among mechanical improvements added to the six models of Chrysler line

In this system, which was first introduced on the eightcylinder Chrysler models in 1940, each shoe on the front
brakes is provided with an individual operating cylinder
so that both shoes of each brake are self-energizing in
forward braking. This is in contrast with the former
design in which only one shoe of each brake was selfenergizing. Brake pedal pressures are therefore reduced
and the brakes have the inherent ability to withstand
repeated applications with minimum fading.

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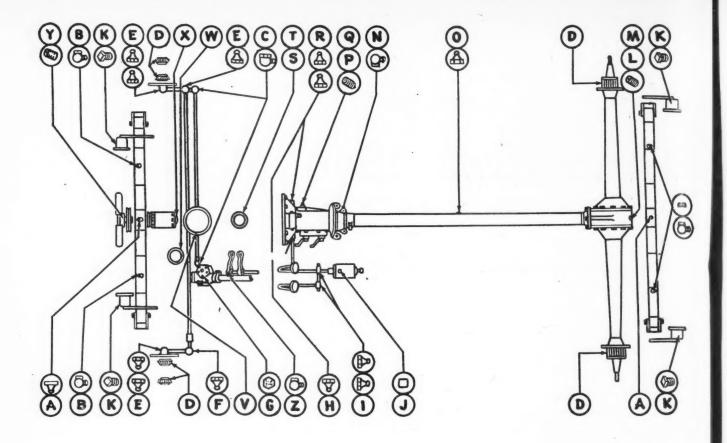
the steering column; a new instrument panel that contributes both to beauty and driving convenience; a speedometer with non-glaring background and white numerals, and the color signal indicating various speed ranges visible on the dial as well as on the pointer; a newly-designed metal radio screen, finished in chrome and placed behind the plastic radio grille; new clear plastic control knob on levers and window regulators; new hand-brake warning signals; a new entrance lamp on the cowl to illuminate the front compartment. This light operates when the door is opened.

(Continued on page 88)



FEBRUARY, 1946

AGE



# 1946 Ford V-8 Lubrication Chart

Follow this detailed procedure on 1946 Ford V-8

lube jobs for more efficient service lube guidance.

	Lubrication Points	Type of Lubricant and Procedure	Lubricant Period in Miles		Lubrication Points	Type of Lubricant and Procedure	Lubricant Period In Miles
	Front and rear springs Spring covers Suner DeLuxe	Spring lubricant—Pressure gun	1000	S	Crankcase oil filler	Check oil level daily, replenish as required. Drain oil pan and refill with 5 qts. engine	
_	only	Spring lubricant—Pressure gun	5000			oil, four times a year or at least every	
C	Drag link	Clean and repack with wheel bearing	1000			Minimum temperature above 32 deg. F.— S A E 30	
U	From and rear wheel bearings	lubricant	5000			M n'm m'em eratures ahove 10 deg. F	
E	Steering spindles	Pressure gun grease	1000			S.A.E. 20 or 20W	
F	Tie rod	Pressure gun grease	1000			Minimum temperature above 10 deg. F	
G	Steering gear case	Add as required mild E.P. S.A.E. 90 for all seasons.	1000			S.A.E. 10 or 10W Lower temperatures—10W plus 10%	
14	Clutch release equalizer shaft.		1000			kerosene	
ï	Clutch and brake pedals	Pressure gun grease	1000	Т	Breather cap	Wash screen in gasoline-wet with engine	
J	Brake master cylinder	Add brake fluid (correct level 1/4 in. from				oil when dry	1000
9.0	Charle shoothers	Add shock absorber fluid	5000	٧	Oil bath type cleaner	Remove cleaner—clean and refill sump to level mark with engine oil (same grade as	
L	Shock absorbers	Add mild E.P. gear oil to level of filler plug.	5000			used in engine) each time oil pan is	
_	Trom date	Summer—S.A.E. 140 Winter—S.A.E. 90	1000			drained, more frequently under severe	
M	Rear axle	Drain, flush and refill with 21/2 pints mild				dust conditions. Do not immerse silencer	
		E.P. gear oil, twice yearly or at least every	5000			body in cleaning fluid. Occasionally wash	2000
		Summer-S.A.E. 140 Winter-S.A.E. 90		W	Oil filter	filter assembly in cleaning fluid	
N	Universal joint	Universal joint lubricant		**	On mile	cartridge, run engine, check for leaks a	t
0	Drive shaft center bearing	Pressure gun grease	1000			filter and recheck oil level	5000
P	Transmission	Add mild E.P. gear oil to level of filler plug Summer—S.A.E. 90 Winter—S.A.E. 80		X	Generator	Engine oil—S.A.E. 20	1000
0	Transmission	Drain flush and refill with 23/2 pints mild		Y	Fan	Turn fan until plug is at the top. Remove plug and add 1 oz. engine oil. Turn far	
4		E.P. gear oil, twice yearly or all east every Summer—S.A.E. 90 Winter—S.A.E. 80	5000			until hole is at the bottom to drain excessil. Install plug	5000
R	Clutch release shaft	Pressure gun grease	1000	Z	Gear shift levers	Pressure gun grease	. 1000

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# Super Service PLUS

Super Service methods can build profitable business volume if featured properly and planned wisely . . . . by John T. Lynch

USTOMERS are allergic to long delays and waiting to learn what is needed in the way of service or repairs for their cars. The Charles Schonlaw organization of Los Angeles, Calif., overcame such difficulties by devoting full attention to departmentalizing their shop. They have carried out the super service station idea to its last detail, making it easier for the car owner to buy the services his car needs, cutting down on all paper work that is so annoying to the car owner and which tends to slow up service and increase overhead.

To carry out such a policy of speeding the customer on his way, departmentalizing is of course important, but the

Schonlaw Co. also found out that to be successful, carefully planned advertising campaigns are necessary to bring the customer to the shop. In addition, it is imperative that each department be fully supplied with such equipment and tools that are required to do the most work in the shortest time.

Several forms of advertising are used to focus the news at car owners. Newspaper ads are used consistently, as well as the classified section of the local telephone directory. And direct mail is also heavily used to "spread the word" to owners. As an example of the type of ad which appears in the various media is this salty warning:

"You couldn't do a better job of ruining your car if you smashed it with a sledge hammer than you can by neglecting it various service needs."

With this opener sinking in, numerous other important data are included to carry through with the thought. Does it have any effect on the car owner? Does he gasp and start running for his car and down to the Schonlaw shop? Maybe he doesn't react that quickly, but the books at the shop office are strong testimony that the messages hit hard and connect with results.

But advertising alone, no matter how powerfully it tells a message, must be linked with actual efficient service in order to complete the servicing cycle. And advertising and service go hand in hand at the Schonlaw organization. Each department is so well arranged that repair work on any car can be done in a minimum amount of time without sacrificing the quality of service.

In addition to the complete line of equipment each department has at hand, housekeeping is of paramount importance. There is plenty of room in all of the departments and neatness is very evident at every turn. The entire shop layout symbolizes a modern and efficient organization which immediately attracts car owners coming in for automotive service.

(Continued on page 68)



"I wonder if the Boss suspects us of loafing . . . Putting our pay in a gift box!"

AGE

# Pop Shifts to the Automatic



## Transmission

Curiosity kills a clutch job when Pop O'Neill starts investigating in this 48th article of this popular Motor Age series



ITH the ledger open in front of him, Pop O'Neill was jotting down the amounts owed by several delinquent customers. He sent them "duns" every month and always hated doing it. It annoyed him to think anyone had to be "dunned" to pay an honest debt. Another time he would hardly have known Tommy Winters was talking on the office phone, but now the sound distracted him. He stopped writing, laid the pencil in the ledger to mark his place, then leaned on his elbows, waiting for Tommy to finish.
"That's right," Tommy was saying, "a clutch driving

plate and a pressure plate for a '41 DeSoto." Then after a moment's silence he said, "Yeah. As soon as we can get them." Putting down the phone, he started to leave, but Pop called him back.

'Are you orderin' that stuff for Doc Fay's car?" asked

Pop, slowly stroking his chin and his eyes frowning. "Sure."

"Your idea?"

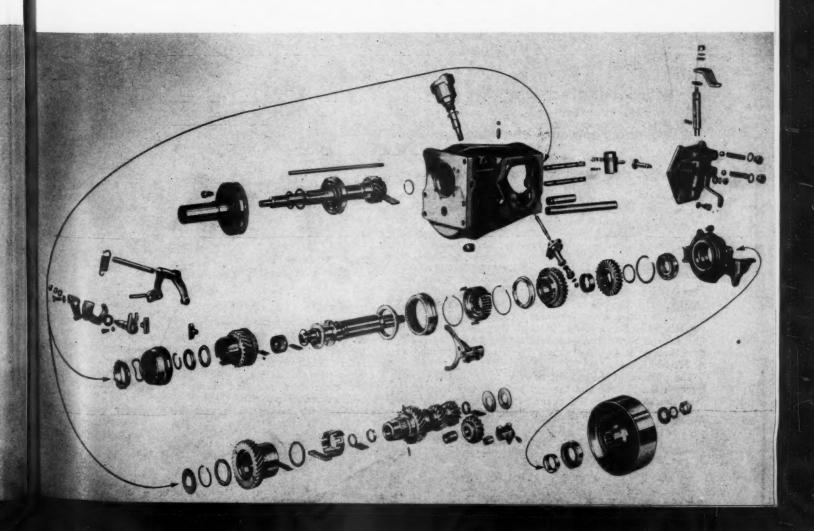
"Larry told me to order them."
"Hmm," said Pop. "I guess maybe I ought to take a gander at that job."

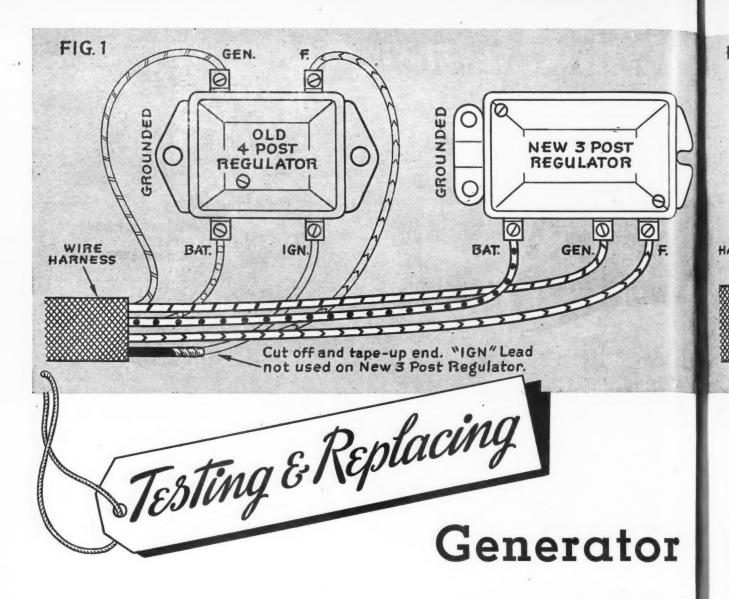
"It's okay," said Tommy. "Larry found the trouble. The clutch is all shot."

Pop closed the ledger and got to his feet. "I believe you. But I'm like the housekeeper in the girls' dormitory who found the toilet seats up. My curiosity is aroused."

With Tommy following, he went out into the shop and made straight for the car on which Larry Tate was working.

(Continued on page 71)

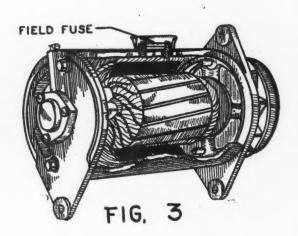




Follow this procedure when testing and replacing charging controls for accurate maintenance

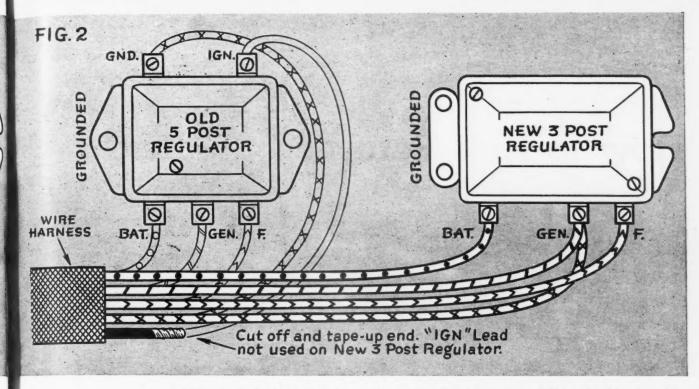
UT-OUT RELAY: The cut-out relay consists of two windings—the current or series winding which consists of a few turns of heavy wire through which all the current output of the generator flows when the relay points are closed, and the voltage, or shunt winding which consists of a great many turns of very fine wire which has enough resistance to permit a very small current to flow through it to the ground. These coils are wound on a soft iron core.

The purpose of the cut-out relay is to break the circuit between the battery and the generator at any time when the generator voltage is less than the battery voltage and thus prevent the battery from discharging through the



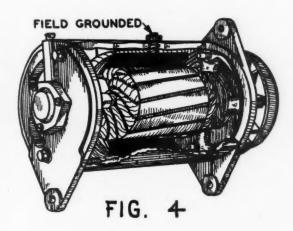
generator; and also to complete the circuit between the generator and battery when the generator voltage is greater than the battery voltage and thus charge the battery. When installing a new relay, it is always a wise precaution to momentarily connect a wire between the generator main lead, and the battery lead, to insure correct generator polarity.

When the motor starts and the generator begins to



Wiring circuits showing method of connecting new 3-post regulator in place of old type 4 and 5-post regulators.

# **Charging Controls**



function, all the current passes through the shunt coil to ground. As the generator speed increases, the voltage also increases, and more and more current passes through the shunt coil until the magnetism obtained is great enough to overcome the pull of the relay contact armature spring. The magnetism in the core closes the contact points which completes the circuit. The current then flows through the current or series winding, through the contact points to

the battery. The series coil is wound in the same direction as the shunt coil, and, therefore, when current is passing through it, it will add to the magnetism which holds the armature down. Should the generator stop or slow to below generating speed, current will begin to flow from the battery to the generator.

Therefore, magnetism of the series coil will oppose the magnetism of the shunt coil and the resultant magnetic force is not sufficient to hold the armature in its closed position and the contact points will open, breaking the circuit between the battery and the generator.

If test shows that contacts close at too low voltage, increase spring tension on contact armature.

Air gap between armature and core should be from .012 to .017 in. with points closed.

Clearance between contacts should be from .015 to .025 in.

In the event generator fails to charge battery, make certain that generator itself is functioning properly before making any correction in relay.

#### Voltage Regulators

Voltage control units consist of one or two coils used in conjunction with the cutout relay to limit the output of the generator when the voltage in the charging circuit reaches a predetermined safe maximum.

(Continued on page 76)

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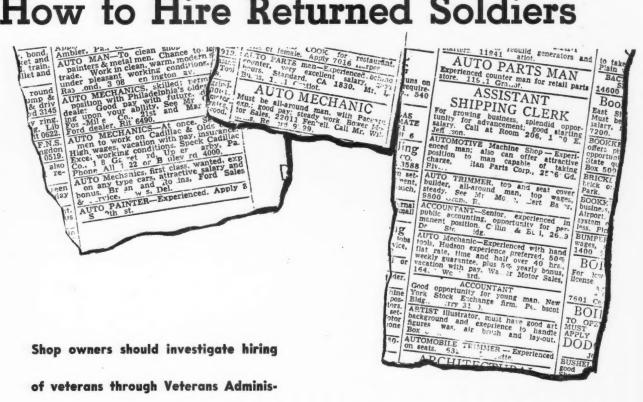
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How to Hire Returned Soldiers



N spite of the fact that shop owners are looking for mechanics, and veterans are looking for jobs, plus the fact that G.I. Bill of Rights is in existence, many show owners are puzzled as to how veterans may be hired and employed under this Bill. The procedure is not too complicated, and employers can be doing a great service to themselves and to veterans by investigating this phase of government aid.

tration aided by G. I. Bill of Rights

A shop owner who desires to employ mechanics as apprentices in building up his shop crew need only contact the nearest office of the Veterans Administration. Here he will find experienced employment counselors who will carefully detail all necessary procedure for hiring veterans who want to learn the automotive maintenance trade. In addition, there are more than 200 field V.A. representatives who are in constant contact with employers desiring to hire veterans.

In addition a shop operator needing some additional mechanics or other help can contact the Selective Service Board, the U.S. Employment Service, the U.S. Civil Service Commission, the Railroad Retirement Board, and also the usual civilian employment agencies. At each of the agencies, trained advisors will help the shop operator contact the desired mechanics and also explain the procedure to be followed.

These representatives can be of aid to employers.

The government will furnish approximately \$50 for tools for the starting apprentice mechanic. In addition, the veteran starting out in the shop receives a subsistence of \$65 per month, if he is single, and \$90 per month if he is married and has dependents. Supplementing this payment, the shop operator pays the apprentice veteran mechanic from 50 to 55 cents an hour. This of course varies with the size shop and various other factors. Salary is settled at the time the employer enters into an agreement with the veteran.

The veteran need not wait until all his applications are approved by the Veterans Administration before he starts in a shop because this usually takes from six to eight weeks. He can start as soon as the employer assures him the job is his. Government subsistence, then, becomes retroactive from the starting date.

Then as the veteran becomes more skilled as an auto mechanic, and his hourly wage rate increases, his government subsistence drops proportionately so that the aggregate total at no time exceeds prevailing wage rates of that particular shop.

The second way to hire veterans with specialized automotive skills, or those who are full-fledged mechanics is through the Selective Service Boards. There are 6443 Selective Service Boards throughout the country, each of which has been officially designated as Veterans Information Centers. While the boards are in no sense employment agencies, there is a reemployment committeeman attached to each board who maintains contact with local business and industry.

Here an employer can secure names of discharged ser-(Continued on page 84)

# PICTURE G A L L E R Y



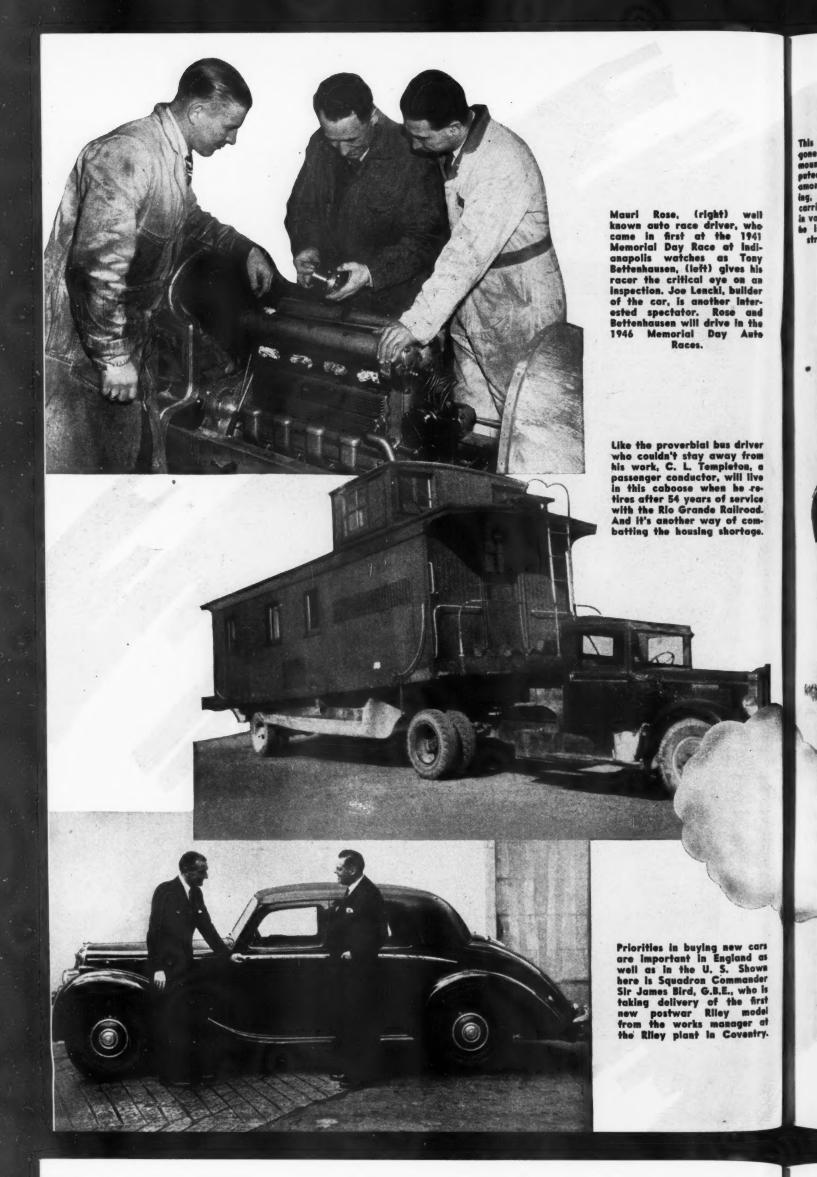
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GE

Thinking of decorating your showroom, or remodeling year shop?

Here's a bit of a decoration which would do much to brighten up the Here's a bit of a decoration which would do much to brighten up the Here's a bit of a decoration which would do much to brighten up the place. Pretty Diana Mumby went out for a swim in Hollywood, but place. Pretty Diana Mumby went out for a swim in Hollywood, but place.











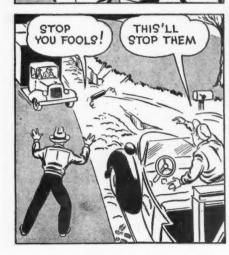






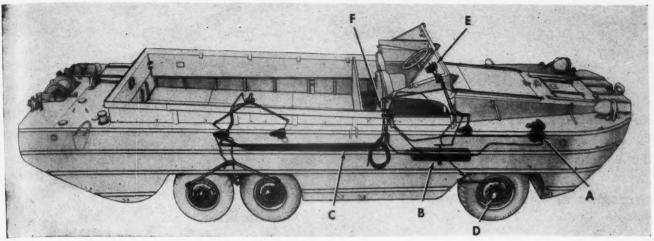












The system of central tire inflation on the war-famous GMC "Duck" is shown above in this "phantom" view. Units are described in the article on this development.

# ARMY "DUCK" has Automatic Tire Inflation

Central system of inflation-deflation emerged after actual combat test

NE of the outstanding features of the war-famous GMC "Duck," the amphibious vehicle which is boat and truck combined, is a system of central tire inflation which enables the driver to inflate or deflate any or all tires while the vehicle is stationary or moving at full speed on land or water.

Through this unique development, over- or under-inflation of tires is held to a minimum and tire pressures may be adjusted to give the vehicle maximum performance on all types of terrain without unduly exposing its vital

cargo to enemy fire.

After several experimental set-ups made by the GMC Truck & Coach Division of General Motors, builders of the "Duck," the system in its present form was perfected in February, 1943. Referring to the diagram, the essential units are:

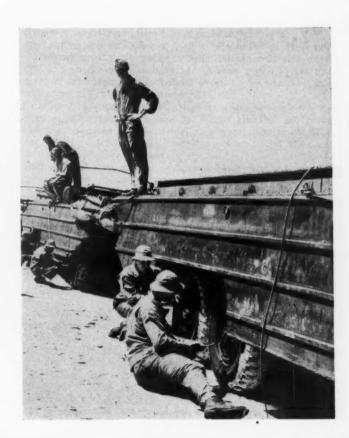
(A) Air compressor pump, located toward the front of the engine, and running constantly with it.

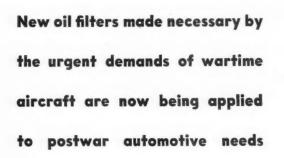
(B) Compressed air storage tank.

- (C) Air lines from the air reservoir to the wheels.
   (D) Rotating pressure joints attached to each wheel hub.
- (E) Tire pressure gauge and inflation control lever on the instrument board.
- (F) Control valves for each of the six air lines carrying air to the tires.

The crux of the central inflation system is the hub device of special design. Actually, this is not a hub, as such, but a rotat-(Continued on page 90)

Inflation and deflations on early "Duck" models (right) had to be done by crew members.







# OIL FILTERS Keep 'em Flying

E would have been saying "yes, sir" and "no, sir" to a lot of krauts if we hadn't managed to maintain the steady rain of bombs on Germany, and it was only by infinite care and painstaking design that we were able to maintain that bombing at an ever accelerating rate. Every part of the planes was necessary to win the war, and any failure tended to postpone final victory. If a spark plug failed, the bomber might fall a victim to an ever-alert Messerschmidt. If the bomb doors didn't open, the aircraft would, of necessity, return to its base with its mission unaccomplished. If the retractable landing gear failed to operate the plane would be wrecked on landing. The safety of the planes was also dependent on the smooth and rapid operation of the gun turrets, and the maneuverability of ship on the action of the wing flaps.

All of these parts, and others too, are hydraulically operated and while supplemental control — electric or manual—was also provided in many instances, the importance of maintaining hydraulic operation is, of course, obvious. To aid in the elimination of possible failure of the hydraulic system through contamination of the fluid, special filters were devised and inserted in the lines. Of necessity such filters were small and considerable research is behind their development.

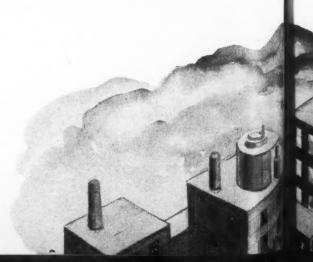
This same research formed the basis for the development of oil filters for post-war civilian automotive use.

Early models of oil filters were designed to remove solid particles only from the oil, and from that consideration were highly satisfactory. However, such filters did not remove water and other contaminants such as acids, oxides, sludge and varnish, which not only destroy or reduce the lubricating qualities of the oil, but also tend to etch bearings and other engine parts, as well as clogging oil lines and piston rings.

With the increased compression pressures, of modern engines came higher combustion chamber temperatures which blowing past the piston rings tended to break the lubricating oil down into carbon and other partly burned residues, which, when mixed with condensed moisture in the crankcase, form sludge and varnish.

Oil companies studying the problem of higher engine output have come forward with oil additives. Some of these additives are designed to prevent oxidation of the oil; others increase the load carrying capacity while a third is a "cleaner" which prevents carbon and sludge from forming within the engine. Some oil filters tended to filter out such additives, and naturally their value was then lost.

The Purolator Micronic filter is a direct result of difficulties encountered in the operation of hydraulically operated aircraft equipment during the war. The filtering element is plastic impregnated paper. The plastic protects the paper against the action of the hot oil and also retains its porosity. The paper is crimped (accordion fashion) and then formed into a cylinder.





Naturally the crimping or folding increased the affective area of the filter and contrary to usual practice, the oil passes from the outside to the center. All foreign material-removed from the oil is therefore readily visible when the filter element is withdrawn from its container. In that way the need for a new element is easily demonstrated to a customer, which is a great improvement compared to the former

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sealed container.
Oil additives are not removed by the Micronic filter,

neither is the color of the oil changed.

The new A C filter consists of a flat bag of special paper. The two sides of the bag are held apart by a mesh of fibers. This bag is then rolled into a cylinder, and a spacer keeps each turn separated from the adjacent side. Oil passes through the porous paper into the bag and through the bag to a central stand pipe.

Cellulose disks are used in the new Fram filter. Radial passages are stamped on the disks which permit a free flow to the entire area of each disk. After filtering through

the disks, the oil passes to a central stand pipe and is returned to the engine.

In addition to these filters, there are the cotton or wool fiber filters and the fullers earth or diatomaceous earth filters. Filters of these types have been in use for a long time and consequently require no description.

However, regardless of the type of filter used, car factories and engine manufacturers are unanimous in recommending that oil be drained at regular intervals—usually one to two thousand miles. There are many reasons for this. Modern oils with additives deteriorate through use and consequently must be replaced periodically. Short trips do not bring the engine up to normal operating

temperature result in a high degree of dilution. This naturally thins the oil, lowering its viscosity and lubricating qualities

ing qualities.

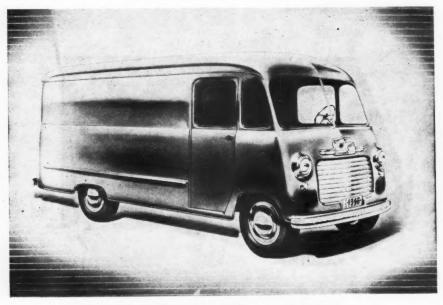
Filters remove the solid matter, the abrasives and metal chips that accumulate within the engine, thereby increase the wear on pistons, cylinder bearings, crankshaft and other engine parts. Careful tests on engines point out that under dusty operating

(Continued on Page 94)

# SALES

## The MOTOR

MOTOR AGE For



### **New Vanette Delivery Truck**

View of the new Vanette delivery truck, built on a Ford chassis. The trucks are being offered in three models. Bodies are of all-steel constructoin and trucks are powered with six or eight-cylinder Ford engines.

### Chrysler Corp. Pays Year-End Bonuses to Employees

Chrysler Corp. paid year-end bonuses totaling \$3,245,715 to 41,316 hourly rated employees in lieu of vacation pay, according to a company announcement. A bonus has been paid annually since the stipulation was written into the union contract in 1940. The payment was made this year, even though the union was without a contract when the bonus was paid.

### White Motor Co. Acquires Nottingham Works

White Motor Co. has acquired from the government the Nottingham Equipment Works operated by General Electric Co. at Cleveland. The plant will be expanded to 360,000 sq. ft., double its present area, and all bus production will be concentrated there. Cost of the project is estimated at \$2.5 million. White now has a backlog of orders totaling about \$14 million for urgently needed city transit buses. Concentration of bus production in the new unit will free space for building trucks to meet what Robert F. Black, president of the company, calls a "critical truck shortage."

### Philadelphia Bank Enters Auto Financing Field

Girard Trust Co., one of Philadelphia's largest and oldest financial institutions, announced to the public its entry into the automobile financing field

Advance proofs of the announcement were sent to all car dealers in Philadelphia and the five neighboring counties which constitute the metropolitan area. Accompanying them was a letter from John O. Bennett, Jr., Manager of Girard Trust company's Time Sales division, which explained the dealer policy of the nationwide network of banks affiliated in the American Bank Credit Plan.

Girard Trust Co., in association with another Philadelphia bank, is the first to inaugurate the much-talked-of American Bank Credit Plan, a new type of automobile financing which is available only through car dealers.

John O. Bennett, Jr., manager, was for many years an executive of a leading automobile financing organization. He will direct a large staff which it thoroughly trained in car financing procedure.

Girard Trust Company is the fourth largest banking institution in Phila-

### Packard Continues Fight Against Foremen's Union

In a letter to all supervisory personnel, George Christopher, president of Packard Motor Car Co., has indicated that Packard will carry its fight against unionization of foremen by the Foremen's Assn. of America to the Supreme Court if necessary. He pointed out that after an NLRB election last Spring, at which foremen voted in favor of collective bargaining, the company refused to bargain in order to obtain a court hearing on the company's contention that foremen are not employees under the National Labor Relations Act, but are members of management. Packard holds further that NLRB has no jurisdiction in the matter and that any orders issued relating to it are unconstitutional, void, and of no force or effect. The case will be heard in the U. S. Court of Appeals in Cincinnati, and should the Court rule against the company's position, an appeal will be taken to the U.S. Supreme Court.

### Mooney Becomes President Of Willys-Overland Motors

Mooney, internationally known figure in the automotive world, became president and chairman of the board of Willys - Overland Motors on Jan. 16, in an expansion program



sion program which saw Ward M. Canaday, for ten years board chairman, elected to the newly created office of chairman of the finance committee, and Charles E. Sorensen, president since early 1944, elected as vice-chairman of the board. Each continues as a director and member of the executive committee.

The announcement was made following the annual meeting of directors and stockholders by F. H. Canaday, who is president of Empire Securities, Inc., the largest owner of Willys-Overland stock.

George W. Ritter continues as vice president, counsel, director and member of the executive committee, but is succeeded in the position of secretary by Milton McCreery, his assistant.

(Continued on Page 102)

## AGE NEWS

SERVICE

February, 1946

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### Construction Started on New Anderson Co. Plant

Ground has been broken for a new modern building to house the \$1,000,000 plant of The Anderson Co., Gary, Ind., manufacturers of automotive parts, according to John W. Anderson, president.

Cost of the proposed new structure will be about \$450,000, and when fully equipped it will represent an investment of more than \$1,000,000. The building, which will be the first section of a project to cover 12.9 acres, embodies, among other modern features, radiant heating. Heat will be furnished by steam pipes concealed in the floors, eliminating radiators or hot air ducts. The building will also be completely air conditioned.

One of the company's new products is a windshield wiper blade which wipes the curved windshields of coming postwar models.

### DePaolo Returns To Hastings Co.



Peter DePaolo

Peter DePaolo, special representative of the Hastings Manufacturing Co., Hastings, Michigan, has resumed his former duties after a leave of absence dating from March, 1942, when he entered

the Army Air Force Technical Training Command, as civilian consultant.

One of his first assignments was in connection with Army Air Force technical schools and basic training centers, during which he pointed out the importance of precision workmanship to Air Force service personnel, In this capacity as a civilian special consultant he worked with over 350,000 members of the Armed Forces.

With the rank of Captain in May, he was transferred to operations. While in England, in June, 1944, he was given the assignment of Assistant Chief of Maintenance for the 8th AAF Service Command. Later that year he was promoted to Lieutenant Colonel and was made Chief of the U. S. Technical Commission to Switzerland.

DePaolo's present assignment calls for a series of jobber meetings covering major distribution points throughout the country.



**New Crosley Model** 

View of the new two-door Crosley car with its new aluminum body with etched satin finish. The model is 145 inches from bumper to bumper, and has an 80-inch wheel base and a 40-inch tread. It will be powered by a 26½ pp, four-cylinder engine.

### Obstacles Blocking New Car Production Are Detailed in Telegram to Snyder by Henry Ford II

The following telegram was sent by Henry Ford II president of the Ford Motor Co., to John W. Snyder, director of the Office of War Mobilization and Reconversion, at Washington January 29.

"Our part of the job of reconversion is mass production of cars and trucks, and we have tried to do everything within our power since V-J Day to get into maximum production as quickly as possible. We have not succeeded. However, this has in no way been the fault of our employes. We have had not strikes since V-J Day.

"Time and again we have been forced to shut down operations because suppliers could not get us parts and materials for our cars and trucks. Some of them have stopped making our parts because they lost money at their ceiling prices. Some are slowed in their production by strikes, or are losing their employes because they cannot raise wages. Some cannot now get steel.

"Unless steel can be made available to us and to our suppliers promptly, we will have to shut down completely some time this week.

"All of this is very costly—aside from the hardships it causes to our employes who want to work but cannot be assured of steady jobs. It costs \$400,000 a day to maintain idle assembly lines. At current OPA price ceilings we are currently losing about \$300 on every car we make. Last week we agreed with UAW-CIO on a wage increase of 18 cents an hour for all UAW employes. Recently we gave a 15 per cent increase to all salaried employes and all hourly-rate employes not in UAW. These two increases will add more than \$40,000,000 to our annual pay roll.

"We have done—and will continue to do—the best we can with our own affairs. We think the risks we have taken are justified because we have faith in the future of America.

"But American businesses—large and small—are dependent upon each other, and we are now blocked by circumstances entirely outside our own business—circumstances which, in our opinion, only national action can remedy.

"To my mind, you cannot have a (Continued on page 102)

**MOTOR AGE For February, 1946** 

### Auto Industry Starting to Roll Despite Labor Turmoil, Parts Shortages and Lack of Glass

Despite strikes and labor turmoil in general, the automobile industry slowly is picking up momentum. Following the slump that set in at the end of last year, when some companies were forced to suspend operations because of parts shortages, assembly lines finally got rolling again and at the end of the month all manufacturers were rolling, with the exception of General Motors. Although there has been a general pickup in the overall picture, the situation still is spotty with Ford furnishing most of the production.

Evidence of the improvement is the statement by John S. Bugas, industrial relations director at Ford, that production is expected to reach 80,000 units a month within 60 days. This would be equivalent to about 4000 a day. It must be remembered, of course, that Ford is in a much more advantageous position in regard to both glass and steel than other companies and more improvement can logically be expected there. The company has its own glass plant operating at Minneapolis and is turning out both plate glass for windshields and sheet glass for windows. The sheet is laminated into safety glass at the Rouge plant.

The glass plant at Dearborn will not be in operation for another 30 days at least. Furnaces were lighted the second week in January and it requires nearly two months of heating up before glass will start pouring out. Ford also has its own steel mills, which now are providing about 60 (Continued on page 98)

Warner Gear Div. Strike Settlement Announced

Settlement of the strike which had held up production for 7½ weeks at Warner Gear Div. of Borg-Warner Corp. will enable Studebaker and Willys to resume automobile production and will aid Packard, Hudson, and Nash to increase production, provided that other supplier's strikes do not interfere. Studebaker and Willys had been most seriously affected, both companies being unable to operate while the strike was on. The settlement also will greatly implement production of Ford, International and Dodge trucks.

### 9000 Veterans Employed Under Ford Training Plan

More than 9,000 World War II veterans are working for Ford Motor Co. dealers under two "earn-while-you-learn" training programs.

Dealers of the Memphis, Tenn., and Long Beach, Cal., branches led in the veteran co-operation which now benefits 9,441 young men in the nation. Memphis listed 498 and Long Beach 468. Employment of more than 400 veterans each was reported from the Edgewater, N. J., Twin City, St. Paul, Minn., Somerville, Mass., Richmond, Va. and Kansas City, Mo. branches.

The majority of veterans are taking advantage of the opportunity Ford dealers are offering in an automotive mechanics training course.

### New Vanette Truck Models Are Announced

Combining the advantages of a van, in cubic content, with the maneuverability and driving ease of a light pick-up, three new models of delivery trucks, called Vanettes, are announced by Vanette, Inc., Detroit. The new Vanettes feature increased load space, driver convenience improvements, and ease of maintenance.

Built on Ford chassis, the three models are: the Vanette Wholesaler, having 134 in. wheel-base and 150 in. load space; Vanette Senior, having 122 in. wheel-base and 134 in. load space; Vanette Close Coupled, having 103 in. wheel-base and 96 in. load space. Inside width has been increased to 70 in. and the height to 70 in. which permits the average man to work without stooping. All models are available with either six or eight-cylinder Ford engine. Bodies are of all-steel construction, with top and side walls lined and insulated.

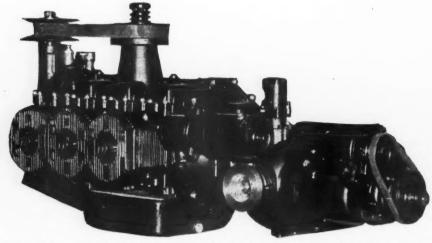
Improvements include new steering and pedal arrangements, crossed sills, wider and more comfortable driver seating, unobstructed vision, and smooth riding qualities resulting from scientific distribution of weight.

### Prototype of New Jack & Heintz Engine Shown

The long discussed sleeve-valve engine, which was known to be under development by Jack & Heintz, appeared to be closer to a complete disclosure with the showing of a prototype of a six-cylinder model at the National Aircraft Show held in Cleveland in January, 1946.

The engine, as shown, is not yet in production but represents the basic features of the line of horizontally opposed, six-cylinder sleeve-valve engines being developed at the present According to the information available at the show, the six-cylinder model has a displacement of 126 cu.in. and is rated, tentatively, at around 75 hp for automotive applications. An unusual feature, apart from design, is the development of intricate aluminum die castings for the engine structure. These are made in two halves, each one comprising a bank of cylinders and part of the crankcase. These die castings are said to be the largest and most intricate ever made in this country.

It is understood that the design lends itself to the manufacture of a watercooled version if that is found desirable later.



View of the new six-cylinder sleeve valve engine developed by Jack & Heintz. The engine was displayed to the public at the National Aircraft Show at Cleveland.

Here's your chance to pick up a little extra money. We'll pay five bucks (\$5.00) for every Shop Kink accepted and printed. So send 'em in to us—some short cut you use in doing a job easier and faster than the other fellow—some special tool you made when you couldn't buy one to do the job—and we'll do the rest. Incidentally we won't accept any that have previously appeared in any other automotive publication. Send 'em in!

# SHOP KINKS

### **Removing Valve Locks**

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I made a gadget to take the locks out of valve on Chrysler-made cars. Take a small magnet and make a handle on it about 6 in. long. Lift the



valve slightly with lifter, tap valve down to loosen the locks. Reach in with the magnet and lift the valve at the same time catch locks with magnet.—L. H. Keeney, 55 Polk St., San Francisco, Calif.

### Replacing Cover

Replacing gearshift cover on 1937 to '39 Chevrolet is made easy by using two 5/16 in. center spring bolts and nuts with S.A.E. threads. Run the nuts about half way up bolts. Set the cover, gearshift lever, spring and gasket in place. Start these two bolts in transmission top screwing them in sufficient to hold them. These should be in opposite corners from each other. Turn nuts down until you can get the two original bolts started in opposite corners. Turn the bolts in and remove your spring bolts. Replace the other original bolts and it's done.—John A. Knepper, Streeklerdale Garage, Chambersburg, R. D. 1, Pa.

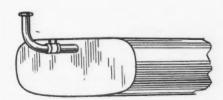
### **Broken Switch Keys**

When switch keys break off in switch, I have a simple way of getting them out. I take a hack saw blade and sharpen one end to a sharp point leaving one tooth at end facing toward the hand. Insert in the switch and pull. The teeth will hang the key. On Dodge switches, the bevel on the blade will release the little plunger at front of switch. I haven't failed to get one out yet.—Oscar Hampton, c/o Little River Motor Co., Ashdown, Ark.



### Repairing Filler Pipe

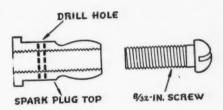
On 1941 Hudson cars, the gas tank filler pipe frequently breaks off at the tank. To overcome this condition, I



cut a two-inch section out of the pipe and insert a piece of water hose over the pipe and hold the hose in place with hose clamps.—Kuhlman Service, 470 Evans St., Woodriver, Ill.

### **Hand Throttle Wire Repair**

In case the hand throttle wire on Chevrolets breaks, and the end with stop or lock that goes through end of accelerator rod is lost, I find by using the top from a spark plug and drilling a hole through it about middle way, then screwing in a 8-32 screw to lock the wire, you have a permanent repair for same.—Kenneth Bristol, Belchertown, Mass.



### **Testing Starter Motor**

You can tell if your starter motor armature is dragging by putting a hack saw blade on the starter housing when trying to start the car. If it shorts out, it will ground the saw blade, the same as it shorts out on an armature as you test a bad one on a growler.—M. E. Faith, Faith's Shell Garage, Mound City, Ill.

#### Oil Pan Screws

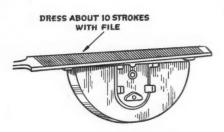
On the Chevrolet oil pan, ¼ in. screws are used and they are hard to put in when installing the pan. To overcome this I use two special "T" rods ¼ in. x 18 in. with a 6 in. "T" handle. With a ¼ in. stove bolt ½ in. long welded to the "T" handle which is easy to start and hold the oil pan in place till you get the screws started.—Johnny Stanley, 504 Herbert Drive, Fort Worth 8, Texas.

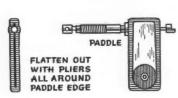
# SHOP KINKS

Here's your chance to pick up a little extra money. We'll pay five bucks (\$5.00) for every Shop Kink accepted and printed. So send 'em in to us—some short cut you use in doing a job easier and faster than the other fellow—some special tool you made when you couldn't buy one to do the job—and we'll do the rest. Incidentally we won't accept any that have previously appeared in any other automotive publication. Send 'em in!

### **Windshield Wiper Motors**

Since windshield wiper motors are hard to get we repair them very successfully as shown in the drawings.





We developed this method because we were unable to obtain repair parts or motors.—Junior Brown, 110 Harris St., Belmont, N. C.

### Removing Insulation

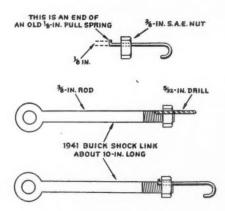
When removing insulation or sound deadener in body and door panels, take a blow-torch or acetylene torch and warm the outer surface of the panel where the deadener is to be removed. The heat on the panel breaks the bond between the metal and the deadener which allows it to be scraped out very easily. Little heat is required, although it should be applied evenly.—Herbert May, Mauston, Wis.

### **Installing Metal Screws**

I find it very easy to install metal screws in doors, also on the dash and instrument panels where these screws are used. Now when these holes are stripped, these screws will not tighten up. In order to use these same screws, I take a thin 1/16 in. cotter pin, split it open and cut off a piece about 5/16 in. long and bend it in a "V" shape. Drop it in the hole that is stripped, and you will be surprised how tight these metal screws will hold. - Robert Sladek, Portage Park Garage Co., 5105-07 Irving Park Rd., Chicago 41, Ill.

### Cotter Pin Puller

We have made a cotter pin puller as shown in the illustration for the purpose of pulling the cotter pin from the 1941 Buick clutch pedal link.



This is a very difficult job but this puller makes it easy. The puller works equally well on cotter pins in other locations.—Fred W. Bohn, 2507 Ellis St., Boise, Idaho.

### Clutch Installation

I have a short cut on installing clutch in Buicks. Instead of removing rear end and then removing transmission, I take two ½ in. bolts about 8 in. long and place on right side of transmission and slide transmission and rear end back as one unit. As the transmission starts back the ring may be removed and the release bearing shaft pried out and go back as the transmission goes. The unit goes back far enough so the main shaft will let the pressure plate out.



Then remove release bearing from fork, then drop the pressure plate and clutch disc.

Now before clutch can be installed, take an old main shaft and cut to the length of 3¼ in. Then burn a small hole in end of shaft so a punch can be used as a pry bar to remove the pilot from clutch disc when assembled.

Now go up with clutch, pilot and pressure plate. When pressure plate is bolted the cone goes in enough to leave the end of the pilot shaft with hole out enough to insert a punch in it to pry it out. This saves lots of time when you get the run of it. The dowel pins hold gasket in place.—Edwin L. Buffington, Box 458, Ashdown, Ark.



## CLEARING HOUSE

### FOR SERVICEMEN'S QUERIES

Bill Toboldt, Editor, Motor Age =

### **Noisy Gear Shift**

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I have a 1939 Buick 40 Series on which the steering-column gear shift is noisy. Please send me some information as to the cause and remedy.—An Illinois Subscriber.

THERE are two major places in this mechanism at which noise is produced—at the gear shift lever itself under the steering wheel, and at the lower end of the steering column between the shift control shaft and the steering column.

To correct the noise at the lower end of the steering column, you can obtain anti-rattle springs from your nearest Buick dealer under part No. 1310960, group No. 4.017. This anti-rattle spring or clip, installed between the control shaft and the steering column, will eliminate the noise at this point.

The noise at the gear shift lever occurs at two points—at the lever pivot pin, and between the end of the control shaft and the lever. You can install fiber washers on the pivot pin to make it fit tighter and eliminate the rattle there. You can obtain shims from your Buick dealer and install them between the end of the control shaft and the shift lever to eliminate this rattle. These shims are supplied in thicknesses of .005 in. and .010 in. The .005 in. shim is part No. 1311209, and the .010 in. shim is No. 1311210.

### Valve Spring Query

One discussion that has come up and so far has never been settled, is in regard to valve springs. The argument is: why is the closed coil of the spring placed nearest the heat? In other words, on the GMC the closed coil of the spring goes next to the head. One reason I often hear is that part of the spring gets the most heat and tends to weaken at that point, I

don't see how that will happen with a water-cooled engine.

My version is, placing the closed coil nearest the head prevents the spring from bouncing and also to prevent distortion.—A Virginia Subscriber.

TO the best of my knowledge, valve springs are not designed with closed coils at one end so as to withstand better the heat of the engine. The reason for winding valve springs with closed coils at one end is to change the natural period of vibration.

Breakage of valve springs is often caused by surging (vibration), a phenomenon which may be visualized as follows:

If we compress slowly a spring whose coils are uniformly spaced, by pressure applied to its ends, all adjacent coils will approach each other equally, because all are subjected to exactly the same pressure and all have the same resistance to compression. On the other hand, if the spring is dealt a sudden blow at one end, as by a cam rotating at high speed, then an additional force comes into play-the inertia of the mass of the spring. This force tends to keep each particle of the spring in the position it occupies when the blow is struck. The coil at the end where the blow occurs is under the influence of the inertia of practically the whole spring, while succeeding coils are subjected to less and less inertia, not only because there is less mass back of them, but also because, as we approach the stationary end of the spring, each succeeding coil has less actual motion, and therefore is accelerated less.

With the cam pressing directly on the lowest coil, which is subjected to the resisting inertia force of almost the whole spring, this coil will close up most, and each succeeding coil less. This occurs during the first part of the compression of the spring, while the mass of the spring is being accelerated in the direction of compression. During the last part of the compression movement, conditions are the exact opposite. The mass of the spring then decelerates, the force of inertia is in the same direction as the pressure of the cam, and during this part of the cycle the coil farthest from the cam closes up most.

In between, there is a point at which there is no acceleration in the rate of compression of the spring and at which, therefore, all the coils close up uniformly. Since the coils close up most first at one end and then at the other end of the spring, the final effect is that the central portion of the spring approaches first one end then the other end.

The most widely employed precaution against spring breakage, due to surge, consists of winding the coils at the stationary end of the spring so close that they will be entirely closed when the valve is fully lifted.

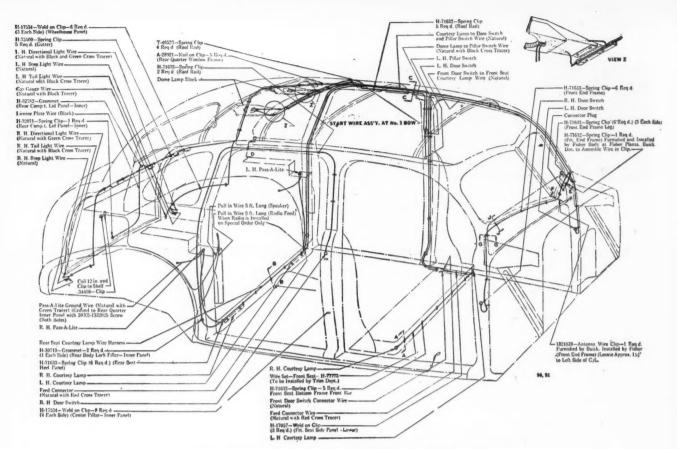
Owing to the very small absolute motion of the coils at that end, this can be done without the risk of making the spring noisy, and, if the coils near the stationary end cannot exceed their intended motion, spring surge, if not entirely eliminated, is at least materially reduced.

So you see, the closed coil springs are placed at the stationary end of the spring which accidentally happens also to be what you term the hot end.

### **Dip Stick Reading**

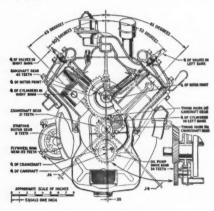
On my '36 Ford V-8, the oil stick gaged 5 quarts of oil to the full mark; after a complete overhaul the same amount of oil in the car gaged one-half inch above the full mark. Can you explain what makes the offset?—A Michigan Subscriber.

THE reason that the dip stick on your '36 Ford shows a different



Body Wiring Diagram, 1942 Buick, Models 90, 91

reading after the engine was overhauled is undoubtedly caused by a change in position of the tubing in the engine block. This tubing has probably gotten loose and is not as far in the block as it was formerly and consequently when the dip stick is put in it measures a small amount of oil.



### **Engine Develops Ping**

We have a 1937 Plymouth that develops a ping at 50 m.p.h., but performs fine up to that point. The distributor has been checked, and timed with a timing light. The customer uses premium-grade gasoline. We have a 1940 Buick Special which performs in the same manner.

Some of our Chevrolets, when accelerating a little fast, pop back

through the carburetor.

Please give us the solution to these problems.—A Wisconsin Subscriber.

ON both your 1937 Plymouth and your 1940 Buick, which develop a ping at higher engine speeds, I would suggest that you make a careful check of the distributor automatic advance. I note that you say the distributor was checked, but it is not clear in my mind whether you checked the automatic advance to make sure that it was not advancing too rapidly at higher speeds. In this connection, you should not only check the centrifugal advance in the distributor, but also the vacuum advance.

Another point to check is the distributor cam itself. In many cases you will find that the cam is not true, with the result that some cylinders are out of time. A careful selection of a new cam should overcome this trouble.

As a further point, the trouble might be caused by a lean mixture resulting from a clogged high-speed jet or a jet that is too small.

On your Chevrolet that is popping back through the carburetor, the trouble is probably caused by the incorrect adjustment of the metering rod. The only way to adjust this is with the metering rod gage which can be obtained from any distributor of the carburetor in question. Another check would be for intake-manifold leaks and for worn intake-valve guides.

### **Step-head Pistons**

I have a 1936 Series 40 Buick which has been driven about 111,000 miles. Outside of having new rings, this motor has never been overhauled. Still has the original pistons. I am considering reboring this motor, and installing new pistons and would like to know if it is possible to use the step-head pistons used in 1938-40 Buick, as I desire more power through higher compression. If this isn't possible, could I use 1937 model Buick pistons? I believe they have a wider oil control ring.

Would it be advisable to plug the squirt holes on connecting rods, as I am not turning down the shaft? Would this give the cylinder walls enough lubrication?—A Kansas Subscriber.

A FTER checking the pistons used in the 1936 series 40 Buick with those used in the 1938 series, I find that they are not interchangeable. The reason for this is that the 1938 cylinder heads are recessed to take the domed pistons when they are at the top of the stroke. Therefore, to increase the compression on your 1936 model, it will be necessary to plane the cylinder head.

You could remove ½ in. of metal or possibly 5/32 in. without getting into serious trouble from detonation or the possibility of breaking through the

(Continued on page 50)

This month ...

### STUDEBAKER'S 94TH ANNIVERSARY

1852-1946



# And this month Studebaker takes another long stride forward

STUDEBAKER enters upon its 95th consecutive year of service in the field of transportation this month with new pride and purpose.

A multi-million-dollar program of enlarged production is under way—and the most significant period of expansion in Studebaker's long and colorful history has started.

With new buildings, new factory equipment and machines, extensive rearranging and modernization of existing plants, Studebaker has resumed the manufacture of cars and trucks fully prepared to surpass all its former production peaks.

You don't have to look twice to know that Studebaker's greatest days of achievement have begun. From production lines to dealers' showrooms, it's obvious that Studebaker is on the march everywhere.

### STUDEBAKER

South Bend 27, Indiana, U. S. A.

Now-more than ever-America's friendliest factory

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### Turning the Spotlight on Finance Charges

(Continued from page 21)

missions, bonuses, reserves, etc., to those who gave them their business.

They started a practice that soon got out of hand and found they had a bear by the tail. Soon, dealers alive to the possibilities of extra profits from exorbitant finance charges, joined the "free for all" and, today, we have a situation where the pot is calling the kettle black all of which fails to remedy a bad situation.

While it is my considered opinion that finance companies, banks and dealers will not be able to correct this situation by voluntary cooperation, I cannot say that State laws passed to control finance companies and others have been uniformly successful.

In this State, we have tried voluntary cooperation without success. We raised \$16,500 for the Philadelphia Better Business Bureau in 1939 to expose unscrupulous activities in connection with new car sales. Much good was accomplished, but nothing was at- ' tempted on used cars.

Although regulation or licensing may be desirable at times to achieve an objective, generally speaking, such laws have been of little benefit to automobile dealers. Nor am I sure that legislation will achieve what its sponsors desire in Pennsylvania, unless it is very, very carefully drafted and efficiently and fearlessly administered and enforced. After all, no law is any better than its administration and enforcement.

However, I reluctantly agree that further talk on the question is useless and that the only remedy is for all interests to get together and strive for the best legislation possible, if the Legislature of Pennsylvania desires regulation. After all, the question is often asked, "Banks and small loan companies are regulated, why not those engaged in retail automobile installment sales?"

Although the investigation was all embracive, the great majority of complaints to date have been from the purchasers of used cars, mainly because car prices are a matter of record whereas it is difficult to obtain list prices on furniture, jewelry, furs, clothing, etc.

Unquestionably, if regulation is recommended, the financing of motor vehicles would be treated separately in a special law controlling consumer financing.

Through the courtesy of the Chairman of the Committee, I am able to present a breakdown of a few complaints that are typical of the hundreds that have been received and analyzed by the Committee.

Should legislation be enacted, the following abuses might, to some extent, be corrected or curtailed, and the unscrupulous persons indulging in them driven out of business:

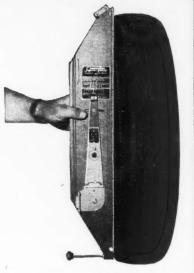
- 1. The charging of excessive rate of finance charges.
- 2. No refunding or inadequate refunding of finance charges on (Continued on page 58)



"What were you boys flipping a coin for—just as we walked up?"

# uper-casy BER-CASTER GAGE

### THE ONLY GAGE THAT HAS A BUILT-IN FLOOR SLOPE COMPENSATOR



### LOW-PRICED

Handiest camber-caster gage ever invented. Designed for the mechanic who wants a simple, inexpensive device for doing the job quickly and accurately.

The only gage that has a built-in floor slope compensator. (Patented.) Once the gage is set to the floor slope, the slope is automatically compensated for in all readings.

### DOES THE JOB IN 1/3 THE TIME

### FASTER

Checks floor slope and one wheel for CAMBER in 30 seconds.

Checks floor slope, CASTER and CAMBER on both wheels in 3 minutes.

### LIGHTER

Weighs only 3 lbs.

#### SMALLER

Only 24 inches long

### MORE ACCURATE

Automatically compensates for floor space.



MICRO-LINOR SERVICE CORP'N 1623 W. Fort St.

Detroit 16, Mich.

### FLEET OWNERS AND BUS OPERATORS

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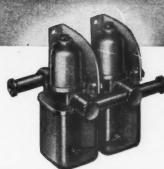
- A Reduce your fuel pump inventory
- B Simplify fuel pump maintenance
- G Increase vehicle mileage between overhauls
- Avoid fuel pump trouble on the road
- Reduce fuel costs
- ( Improve vehicle performance

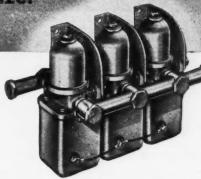
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AUTOPULSE Corporation

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FEBRUARY, 1946

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(Continued from page 46)

cylinder head into the water jacket.

Don't forget, just reboring the engine will increase your compression because of the larger bore while the combustion chamber space retains the same dimensions it had before.

In regard to plugging the oil squirt holes in the connecting rods, this is only advisable if the crankshaft is worn .003 in. or more out of round. Under such conditions, the cylinder walls will receive ample lubrication

from oil thrown off from the sides of the rod bearings. Naturally, if the crank shaft is not worn, it is advisable to retain the oil squirt holes in the rod bearings.

### Thump in Engine

I have a 1935 Master Chevrolet which has a pronounced thump somewhere in the engine.

(Continued on page 52)

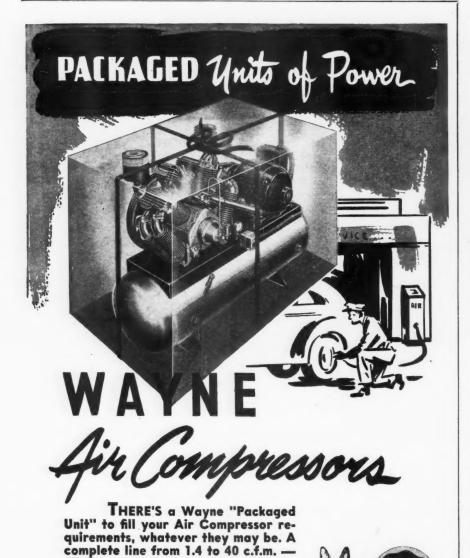












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Guarantee, plus a Nation-wide Factory-Trained Service Organization.

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WAYNE AIR COMPRESSORS
GASOLINE PUMPS + CAR WASHERS + AIR SCALES + REELS + LIFTS

# Take a LOOK in the BOOKS

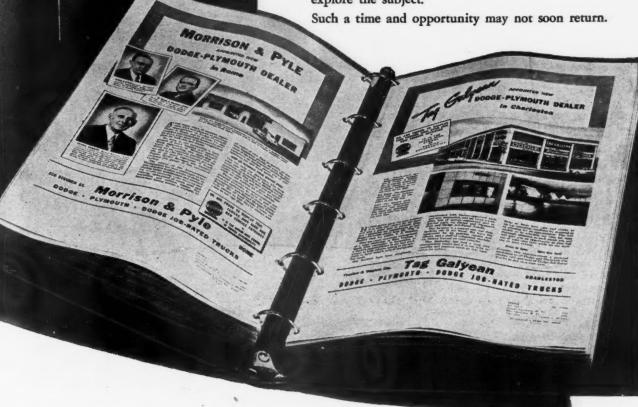
THESE ARE three of the most interesting books in the automobile business. They are DEALER BOOKS.

The volumes contain 861 pages. Each page announces and describes a new Dodge dealer appointment.

You have probably never seen more substantial evidence of preparedness and confidence than these books contain. If you are interested in being an automobile dealer, come out and take a look at the official books and see the caliber and strength they represent.

The Dodge dealer agreement attracted these people because it is the only one of its kind,—it is a *single* agreement, embracing two fine cars which entirely blanket the lower and middle priced markets,—and the famous line of Dodge Job-Rated Trucks for which there is an almost endless demand.

There are always openings and opportunities in the Dodge organization for the right business interests. This is our invitation to you if you would like to explore the subject.



DODGE · PLYMOUTH · DODGE Job-Rated TRUCKS

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FEBRUARY, 1946

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51

### **Clearing House**

(Continued from page 50)

In the past year, I have replaced three sets of valves, which were burned out completely after about two months of use. With the last set of valves, I also replaced the complete rocker assembly and installed new push rods and guides. The car ran all right for about a month and now the same trouble has occurred again.

I might mention that the car never uses any extra oil, but, regardless of how well it ran, it always did have a miss while idling. Listening to this skip at the end of the exhaust pipe, one could hear a definite compression blow-by.

The valves are set at proper specification clearances. With all this, every once in awhile the thump will disappear for a short period, and the car will perform 100 per cent.—A New York Subscriber.

FROM the description you have given of the trouble you are experiencing with the 1935 Chevrolet, I am inclined to believe you are having difficulty with sticking valves. This might be caused by incorrect installation of the valve guides. The exhaust valve guides should be installed with its open end toward the cylinder head. The intake valve spring seat should be assembled to the guide with its open end up. Furthermore, on this engine, the exhaust guide is shorter than the intake guide. It is also important that the valves do not become mixed, as the diameter of the intake and exhaust valve stems is different.

In replacing valve guides, the valve guide collar is assembled to the valve guide with the open face toward the cylinder head on the exhaust valve, and the intake valve spring is assembled to the guide with the open end up. The valve guides are then pressed into position in the cylinder head.

I would also suggest that you make a careful check of the push-rod springs, for, if one of these is broken, you will get a noise such as you describe. Also be sure that the push rods are seated in the bottom of the valve lifters, and the spring retainer securely belted in position. I would suggest that you check the rocker arms and shafts. There are three different rocker arms used in this engine -one type for the exhaust valves and two different types for the intake valves. The intake rocker-arm valves have right and lefthand angles. The righthand angle intake rocker arms are assembled to cylinders 1, 3, and 5, while the lefthand arms are assembled to cylinders 2, 4, and 6.

After you have checked your entire valve system I would suggest that you use a light engine oil, SAE 10, and also some special valve oil to make sure that none of the valves are sticking.

One other suggestion, and that is in regard to the rocker-arm shafts. One end of the rocker-arm shaft is plugged and the shafts must be installed to the cylinder heads with the open end to the center. After they are installed in their proper place, they should be held in position with a special bolt and special washer. The special bolt allows the rocker-arm shaft and assembly to be bolted in one place, and the special washer prevents oil from leaking out around the bolt. Also check to make sure that lubrication is reaching the assembly.

reaching the assembly.

I am sure if you will check the engine as I have suggested you will locate your trouble without much difficulty.

### Removal of Oil Pan

Can you give us the proper procedure to remove and reinstall the oil pan on the 1941-42 Ford Six?—Ehleringer Garage, Iona, Minn.

THE best method for removing the oil pan on the six-cylinder Ford is to remove the starter and then jack up the front of the engine as far as it will go, and place a block between the

vibration damper and the front crossmember. This will permit removal of the oil pan front bolts, and the remaining bolts are, of course, easy to get at.

### No Oil Pressure

I have a 1935 Studebaker Dictator that I have overhauled, and it hasn't got any oil pressure. I took pan off and put on oil detector and the oil seems to come out of the timing case. The mains and rods seem to be O.K. I put in new oil pump and it still hasn't got any oil pressure when hot. I turned the adjustment on the side of motor clear in and that doesn't make any difference. I would like to know what to do for it.—Holman's Garage, 425 South Popla, Forstoria, Ohio.

N the oil pressure trouble you are having with the Studebaker Dictator, I would suggest you look at the crankshaft front bearing, and also look at the oil supply to the timing gears as it would seem that that would be the cause of your loss in oil pressure. In addition, check the crankshaft end play and if this is excessive, correct it by the installation of the necessary thrust shims at the front bearing.

I would suggest you repeat the oil leak test with the timing case cover and timing gears removed.



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# CASITE

## GUARANTEES QUICK STARTING IN WINTER WEATHER OR DOUBLE-YOUR-MONEY-BACK

• Just a touch of the starter and—ZOOM—cars start right now, with Casite in the crankcase. Casite retards congealing of oil . . . lets motors spin over rapidly . . . guarantees fast, battery-saving starts, no matter how cold.

Millions already use Casite regularly. Millions more are learning about Casite through big-space ads in the nation's leading magazines. Tie in and cash in with Casite now!

... A pint in the crankcase every oil change

THE CASITE CORPORATION . HASTINGS, MICHIGAN

### GUARANTEE

We guarantee that any motor capable of being started in a warm room will start promptly in the coldest weather when Casite is added to the crankcase according to instructions. If your car fails to start quickly, you get double-your-money-back by filling out guarantee certificate and mailing it to The Casite Corporation, Hastings, Michigan. Maximum refund is \$1.30 per pint, twice the nationally advertised price of Casite.



65¢

### WASHINGTON RULINGS



### AND REGULATIONS

### Price Policy Announced On Used 1945, 1946 Cars

SELLERS of used 1945 and 1946 model year passenger automobiles may use as ceiling prices the price paid at retail for the cars when new, OPA announced.

This action is a temporary measure. At an early date a schedule of dollar-and-cent ceilings for 1945 and 1946 cars will be included in the used car regulation.

An OPA action establishing such prices as ceiling prices for used 1945 and 1946 cars became effective January 14, 1946.

The seller of a used 1945 or 1946 model year passenger automobile must supply the buyer with a copy of the Certificate of Transfer he received when he purchased the car, also a written statement declaring that the price he is charging for the used car is not higher than the retail price for the car when bought new. Copies of both the Certificate of Transfer and the seller's written statement also must be filed with the seller's local Price Control Board.

### 54 Per Cent of Surplus **Vehicles Require Repairs**

S AMPLING of the condition of motor vehicles available in surplus as of December 21, 1945, showed that more than 54 per cent required repairs, 6.8 per cent were not usable as vehicles and only 6.1 per cent of the trucks and jeeps were new, the Surplus Property Administration announced recently. No new passenger cars were available.

The inventory as of December 31, 1945, listed 31,084 surplus motor vehicles, an increase of 3,406 cars over the November 30 inventory. The bulk of these vehicles were trucks and jeeps, totaling together 26,513 for November and 29,882 for December.

While acquisitions in December of trucks, jeeps and passenger cars mounted above those of the preceding month, officials pointed out that the proportion of vehicles in poor condition will tend to increase in the inventory, since they move at a slower

A total of 11,587 motor vehicles, largely trucks and jeeps, were acquired in December as compared with 10,187 the preceding month. Exactly 8,181 motor vehicles were sold in December for \$6,965,027.62, representing \$16,851,118.01 in original cost. to the government. November disposals were slightly higher, due to heavier sales of trucks and jeeps.

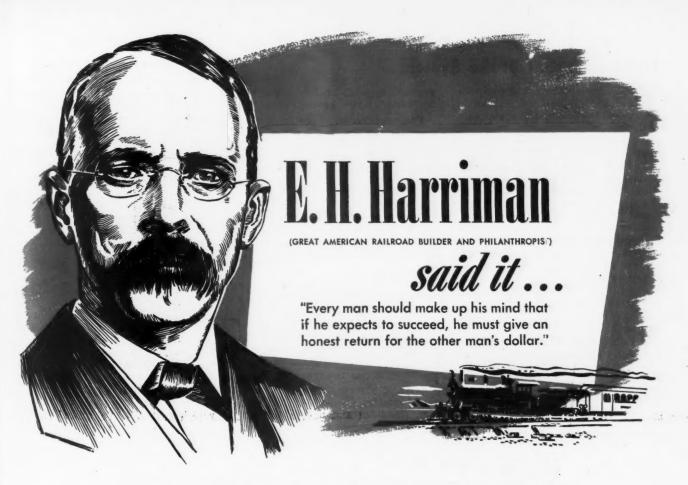
### More New Car Prices Announced by OPA

CEILING prices for Plymouth, Dodge, De Soto, Chrysler, Nash and Lincoln 1946 model passenger cars. have been set by OPA. Four Ford models, not previously priced have been added to the list. The following official prices, F.O.B. factory, do not include excise taxes, transportation or preparation and handling charges.



on problem—only getting enough gas to supply the demand." Ve didn't have any reconversion problem-

	1946 Retail Prices	1942 Retail
Plymouth Deluxe		
4-door sedan	998	882
2-door sedan	947	843
2 mage course	910	805
3-pass coupe		878
club coupe	. 988	8/0
Dismouth Consist Da Luve		
Plymouth Special De Luxe	1005	1 600
4-door sedan	. 1025	928
2-door sedan		888
3-pass coupe	. 951	848
club coupe	. 1028	921
D. L. D. L.		
Dodge De Luxe		
4-door sedan		991
2-deer sedan		951
3-pass coupe	. 980	888
Dodge Custom		
	44.48	1041
4-door sedan		1038
club coupe	. 1138	1038
DeDe Soto De Luxe		
4-door sedan		1093
2-door sedan		1065
		1000
3-pass coupe		1082
club coups	. 1160	1002
(Continued on	page 1	04)



## HISTORY PROVES IT—YOU'RE RIGHT WITH HONEST WORKMANSHIP AND ORIGINAL FACTORY PARTS...

Good times and bad have proved the rightness of the Auto-Lite formula—honest workmanship and original factory parts. Despite the recent serious shortage of materials and labor, that formula has brought success and stability to holders of the Auto-Lite Parts and Service Franchise. Today, with over

8½ million cars on the road carrying Auto-Lite parts as original equipment, the formula is better than ever before. Auto-Lite Franchise holders have every reason to look ahead to a record-breaking business.

Auto-Lite is now expanding its service and parts distribution system. Garage and service station operators who can qualify for the Auto-Lite Franchise can get full information from the nearest Auto-Lite Central Distributor or by writing to

### THE ELECTRIC AUTO-LITE COMPANY

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this sign identifies an authorized Auto-Lite Service Station ties in with Auto-Lite's great radio show and Classified Tel-

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To Fit Your Business
ASK ABOUT THEM TODAY

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Starting · Lighting · Ignition

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### Chrysler Corp. Adopts Two Cylinder Front Brake System

THE Chrysler Corp. will equip its new 1946 models of Plymouth, Dodge, De Soto and Chrysler cars with a brake system which was first introduced on the eight cylinder Chrysler models in 1940.

In this system the front wheel brakes are of the two cylinder type with separate cylinders for each shoe. Six of the eight brake shoes are therefore self-energizing in forward braking. This is in contrast with the former system in which only four of the eight shoes are energized when the car is moving forward and the brakes applied.

According to Chrysler engineers the system has many outstanding features which may be briefly summarized as follows:

1. Pedal pressures are reduced materially below former practice and are said to be well within the ideal range for normal traffic stops. The actual reduction in pedal pressure ranges from 25 to 30 per cent on all models.

2. It has the inherent ability to withstand repeated severe braking applications on grades or at high road speeds with a minimum loss of effectiveness or fading.

3. Longer lining life is another major advantage particularly in fleet operations. This is attributed to a better distribution of wear owing to the fact that both front wheel brake shoes do the same amount of braking.

4. Full controllability also is claimed because of adherence to the "fixed

anchor" type of brake design, with no "servo" action between shoes.

Principal feature of the front wheel arrangement is in the location of the fixed anchors, 180 deg. apart, and so positioned that rotation of the drum in forward motion is always directly toward each anchor. With this arrangement each shoe has its individual brake cylinder. The rear wheel brakes represent a modification of the type used formerly, the single brake cylinder being retained in the interest of an acceptable degree of braking in reverse.

Six of the eight brake shoes are self-energized and deliver about one-third more braking effect than the former conventional system. Each of the front shoes delivers equal output whereas at the rear, the forward shoe delivers almost three times as much braking effect as the rear shoe.

Some of the constructional details are of interest. Brake cylinders have been simplified and have a uniform bore of 1% in., making it possible to use the same piston interchangeably both front and rear. The front wheel cylinder assemblies are smaller and more compact than before. Pistons are of aluminum.

Service adjustments have been greatly simplified by specifying an equal clearance between drum and lining at the heel and toe of the shoes. The method of adjustment of clearance remains conventional and is unchanged from previous service station practice.



A special "Velvet Grip" vise that holds piston pins, spindle bolts and other cylindrical parts without distortion or scuffing is being manufactured by Thompson Products, Inc.,



Cleveland, and soon will be stocked by the company's automotive parts distributors. The tool handles diameters from % in. to 1% in. and may be bolted to the bench or held in a standard machinist's vise.

The two soft V-jaws grip firmly with low clamping pressure. The top jaw is formed to hold the cupped-head Ford spindle bolt and the heads of Studebaker and other bolts. This top jaw has a "rolling" action that automatically adjusts it to the work. It is reversible for small diameters.

### Sealed Beam Conversion Kit Is Introduced

A new Sealed Beam Conversion Kit to fit over 90% of all pre-1940 model cars and trucks has been announced by Autopart Manufacturing Co., Chicago.

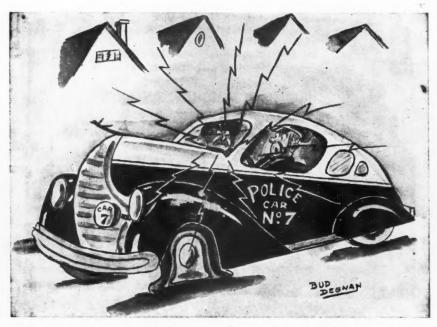
Many new features have been incorporated in this Sealed Beam adapter to provide for convenient installation, maximum lighting efficiency, and long-lasting service.

The unit is furnished completely pre-assembled at the factory for ready installation. It has a built-in parking light with a press-fit socket . . . makes possible the use of extra large parking light bulb for more light and safer parking.

For complete information write to Autopart Manufacturing Co., 1525 S. Michigan Ave., Chicago 5, Ill.

### **New Calculator Available**

The new wire and cable calculator developed by the merchandising division of The Electric Auto-Lite Company is still available in limited numbers. The calculator allows the user to determine proper gauge wire for head, tail, marker, and rear lights, generator and power circuit for any make automobile. They can be obtained for 10 cents from Auto-Lite distributors, jobbers or by writing directly to the Merchandising Division of Auto-Lite at Toledo 1, Ohio.



"Car number seven—car number seven—your left front tire is flat—that is all!"

### THIS YOUNGSTER

is telling the story of WHIZ MOTOR RYTHM to motorists, fleet operators, farmers, and motor boat enthusiasts the country over. That includes your customers!

You'll find the WHIZ KID on billboards; in The Saturday Evening Post, American Magazine, Collier's, Pathfinder; in Commercial Car Journal, Fleet Owner; in Country Gentleman, Capper's Farmer; in Motor Boating.

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This means more business for you. So be sure to talk WHIZ MOTOR RYTHM to every one of your customers. Remind them that it's the sure way to give any motor a new lease on life . . . the right way to get new motors off to a good start for many miles of better performance. Here's an opportunity you just can't afford to miss — feature WHIZ MOTOR RYTHM. R. M. Hollingshead Corporation, Camden, N. J.; Toronto, Can.

Prof. Whiz, the world's foremost hypnotist, is on the road. Don't miss his show when it's in your territory.





### Turning the Spotlight on Finance Charges

(Continued from page 48)

prepayment of contract installments.

No refunding or inadequate refund of insurance charges on prepayment of contract.

 Failure to give customer proper invoice disclosing complete finance and insurance charges, enumerating the insurance coverages.

5. Sharp repossession practices.

6. Failure to place insurance and

deliver Insurance Policy or Certificate of Insurance within reasonable time.

 Failure to deliver Insurance Policy with coverages for which customer has paid.

Unreasonable charges for delinquent payments.

9. Use of numerous rate charts.

10. Deficiency judgments in contract.

11. PACKS.

Legislation might affect certain

operators adversely or compel them to readjust their method of doing business.

If a ceiling is placed on finance charges, excessive dealer participation in the finance charge will be outlawed.

If the filing of but one rate chart is required, finance charges would be more or less competitive.

We are on record with the Committee with a statement that in view of the fact that the dealer originates the business and hands it to finance companies with little or no acquisition cost, they (the dealers) are rightfully entitled to a reasonable commission for channeling the business to finance companies.

In the final analysis, however, we must not overlook the fact that legislative investigations and competition from banks and others, plus a more discriminating buying public will force rates downward with a decline in the amount of dealer participation.

1. Ceiling on finance charges!

2. Filing of one rate chart and making it an unconscionable act to charge more!

Generally speaking, dealers might favor the former if their opinion were requested. By placing a reasonable ceiling on the charge, the public is protected from the unscrupulous operator. There is merit in the second proposal, because competition would keep rates in line.

So many factors enter into the selling of motor vehicles on the installment basis that dealers may have to be satisfied with less participation in the finance charge than was considered proper before banks entered the picture.

Take bank competition for example! Whether you favor it or not, it is here to stay. Will it be a desirable influence? Will they handle sub-normal deals and the older used vehicles? Would the best interests of the dealer be served if banks would only furnish credit on new and late model used cars?

Will banks be as aggressive for installment sale paper during periods when economic conditions may not be as favorable as it appears they may be for the next few years? The last Session of Legislature passed a law which now permits banks to legally make installment loans at 6 per cent discount annually which is approximately 11.3 per cent.

This rate will not permit banks to handle sub-normal deals in ordinary times. There are going to be many fair weather "birds" in the post-war finance field, but in the final analysis, dealers will always have to depend on companies that are with us year after year for the well-rounded service they will need to promote their businesses.

Some dealers have no quarrel to find with bank competition, but will insist on a well-rounded competitive (Continued on page 64)





ON 3,000 TOOLS

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To a vast army of skilled mechanics the brief phrase, "It's a Snap-on", sums up all they care to know of tool quality. Better tools mean added earning power, and they know that the Snap-on name on any tool pays off in speed and accuracy, in dependability and durability. Not only are Snap-on tools "the choice of better mechanics", but they are the choice of industry, widely used in every phase of production, assembly and maintenance. Write for catalog of 3,000 Snap-on tools.

### THIS NATION-WIDE SERVICE BRINGS SNAP-ON TOOLS RIGHT TO YOUR BENCH

To busy mechanics, time means money, and Snap-on service provides this time-saving, money-saving way to buy tools. Snap-on field men call regularly on mechanics in service shops — bring the tools right to the bench, "to see and try before you buy". Mechanics everywhere appreciate this dependable, on-the-spot service that helps keep their tool kits in shape to earn more money.

SNAP-ON TOOLS CORPORATION 8036-B 28th Avenue Kenosha, Wisconsin



FEBRUARY, 1946

When writing to advertisers please mention Motor Age

59

### Legally Speaking

A lawyer's interpretation of federal and local court decisions of interest to repairmen and car dealers

### Injured in Shop

A CUSTOMER, while waiting in a shop, was painfully and seriously injured by an electric shock under rather unusual circumstances.

The proprietor had an electric dis-

play sign in his window and supplied current to the sign by means of wires from a ceiling light. The customer reached out his hand to pick up an item displayed and his arm came in contact with the wires leading to the sign. It was contended that the wires were not properly insulated, and the jury apparently believed this, for it awarded the customer a verdict of \$12,500 for the injuries resulting from the shock.

All of which suggests the importance of a repairman's having regular and careful inspection made of the electric wiring and fixtures in his place. (Pinkussohn vs. Great, 192 South Eastern Reporter, 283.)

### Loan of Employee

WHERE a repairman loans an employee to work temporarily for someone else, what is the liability of the employer if the employee causes damage or injury in the course of his work for the secondary employer to whom he has been loaned?

That question, as put, may seem a bit complicated, but is apt to arise in circumstances where a repairman lets an employee temporarily "help out" a customer or some other businessman. In California recently an employee was loaned to drive a car for a customer. While thus loaned, the employee became involved in an accident resulting in great damage. Passing on the liability of the original employer for the damage negligently done by the employee under these circumstances, the California court said:

"An employee may be loaned by his employer to another, so that the act done by the employee becomes the act of the employer to whom he has been loaned and for the time being the original employer is not responsible for the employee's acts." (Nichols vs. Hitchcock, 70 Pacific Reporter, second series, 654.)

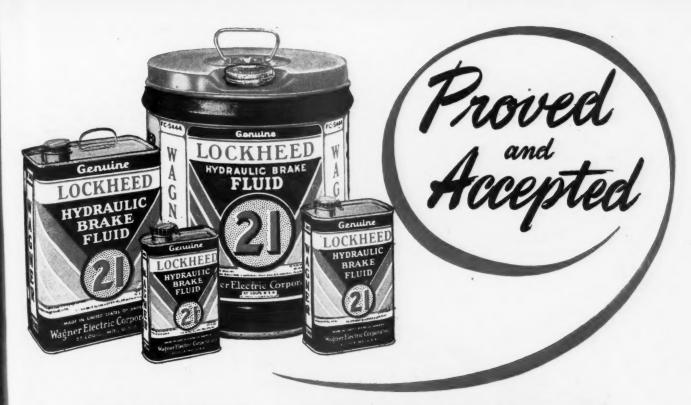
### **Bad Check or Credit?**

A BUSINESSMAN took a check for merchandise. The check was returned unpaid by the bank because of insufficient funds. The businessman then had the customer arrested for passing a bad check. The customer was acquitted of the charge, and then sued the businessman for financial redress for "malicious prosecution."

The facts were these: at the time the check was given, the customer stated he did not have sufficient funds in the bank to cover it. The check was to be paid as soon as he obtained the money and could deposit it. The giving of a bad check under such circumstances, it was held, was not a fraud and not an offense under the

(Continued on page 62)





## WAGNER LOCKHEED No. 21 HYDRAULIC BRAKE FLUID

is used by car and truck manufacturers, and is the most extensively advertised, largest-selling fluid on the market

In addition to being a proved and accepted product there are many reasons why it will pay you to use Wagner Lockheed No. 21 Hydraulic Brake Fluid exclusively.

Wagner Lockheed No. 21 is the only fluid on the market having all these features and advantages.

- 1. ONE mixture for ALL seasons ... Reduces inventory.
- ONE mixture for ALL cars and trucks...Reduces inventory.
- 3. Assures year-round operating performance.
- 4. Functions in subzero temperatures.
- 5. Amply lubricates the system over the operating range of temperature.
- 6. Maintains chemical characteristics after long use.
- 7. Maintains its high operating temperature characteristics.

- 8. Mixes with other approved fluids.
- 9. A proved product ... Used by car manufacturers.
- 10. Nationally advertised . . . Has consumer acceptance.
- 11. Warehoused throughout the United States and Canada at 25 Wagner branches.
- 12. Packaged in containers easily identified by the well-known Wagner red, white, and blue color combination.
- A product of Wagner Electric Corporation, manufacturers of Lockheed Hydraulic Brakes.
- 14. Available everywhere through leading jobbers.

For details, consult your nearest Wagner jobber, or write us. Ask for free copy of Catalog HU-122. Also ask for Catalog HU-17 "How to Bleed and Refi!! Hydraulic Brake Systems." Wagner Electric Corporation, 6498 Plymouth Ave., St. Louis 14, Mo., U. S. A.



TOTAL BRAKE PARTS and FLUID... NOROL... COMOX BRAKE LINING... AIR

How to Blood and Refill HYDRAULIC BRAKE SYSTEMS

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AGE

Remind your customers MBRAKE FLUID SHOULD BE CHECKED TWICE & YEAR"

BRAKES...TACHOGRAPHS...ELECTRIC MOTORS...TRANSFORMERS...INDUSTRIAL BRAKES

### **Legally Speaking**

(Continued from page 60)

bad check act of Georgia, where the transaction occurred.

The court took the view that under these circumstances it was not unreasonable to conclude that the businessman actually extended credit to the customer at the time the check was given, and the check amounted to no more than a promise to pay in the future. Ordinarily, the giving of a bad check is a criminal offense only when merchandise is delivered or services are performed in reliance upon the check.

Courts have held that the postdating of a check is in itself notice to the businessman who accepts it that the check is not good at the time. It has also been decided by some courts that the giving of a bad check in payment of an old account is not a fraud or criminal offense, because the person giving such a check for an old debt obtains nothing on the strength of the

check.

The arresting of a customer on a criminal charge is risky business for a repairman unless he is absolutely certain of his ground. If the customer is acquitted, and it develops that the repairman had him arrested without "probable cause," as the law calls it, the result may be a damage suit for false arrest or malicious prosecution. (Barnes vs. Gossett, 192 South Eastern Reporter, 254.)

### F.O.B. Shipment

THE importance of the F.O.B. point to a repairman is emphasized in a recent decision by the Court of Appeals of Georgia.

There, the court pointed out that where goods are sold under a contract "F.O.B. cars at point of manufacture," they are "to be delivered to the carrier without cost to the purchaser and placed on the cars for shipment to the point of destination." Ordinarily, also, this means that the buyer pays the cost of transportation from the point of shipment.

In the Georgia case, the seller of certain equipment under the arrangement for delivery F.O.B. cars at point of manufacture, sued the buyer for the unpaid balance. The buyer attempted to deduct from the amount which he owed, the amount of the freight charges he had paid on the shipment. However, this was not permitted by the court.

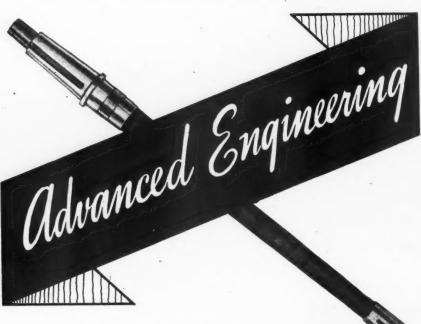
Repairmen buying goods or equipment F.O.B. point of shipment or manufacture should bear in mind that, as a rule, liability for damage to or loss of such goods, in the course of transportation, must be borne by the buyer, although he may have a right to recover against the railroad or other carrier. (Humphries vs. Frick, 192 South Eastern Reporter, 247.)

### Production Doubled on New Polaroid Visor

The production schedule for the new Polaroid Day-Driving Visor has been doubled.

Letters of inquiry about the availability of the product from dealers, distributors, jobbers and consumers throughout the country are being followed up in the order of receipt by the Polaroid Corp. sales divisions in the west, the mid-west and the east, headed respectively by Paul McCulloch, Peter Cameron and George Himman.

The visor is the first major new consumer product to be developed by Polaroid since the war. Consisting of a polarizing curved plastic film of good optical quality mounted in a lightweight metal frame which attaches readily to the visor of most cars, the new Polaroid product has selective light-control properties which is stated to reveal the scene without the glare.



Increased metallurgical knowledge in Heat Treating, finer materials, improved techniques—that's what we mean by Advanced Engineering. For you, Advanced Engineering means U. S. Axles that are tougher and better than ever before. Since 1920 we have been making pioneering progress in the automotive and allied fields. We're still

If you don't have a copy of our Silver Anniversary Catalog, send for your complimentary copy today.

# THE U. S. AXLE COMPANY, INC. POTTSTOWN, PA., U. S. A.

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JUST released from world-wide service with both Army and Navy, the new Fram Filcron oil filter and the unique Fram Filcron cartridge will soon be available to civilian markets. Representing the ultimate in oil filtration, this remarkable development offers many outstanding advantages:

1. Micronic Filtration: The new Fram Filcron filter and cartridge make possible "micronic filtration," the trapping of abrasive particles as small as one micron (.000039 of an inch) in size. This keeps oil physically, visually clean\*; reduces engine wear to a minimum, saves overhauls, repairs, money. Filcron cartridges are available to fit any Fram filter, present or prewar.

Greater Efficiency: Fram Filcron filter and cartridge have a higher clean oil flow rate, and oil is cleaned at one pass.

3. Advanced Design: Bodies and covers of the new Fram Filcron filters are made of heavy, one-piece pressed steel, solidly built to give years of service.

Drain and inlet spuds insure leak-proof connections. The new Fram Filcron cartridge has built-in grommets... and pull out bale attached to bottom plate.

4. Long life: Greater dirt capacity means longer cartridge life, thus reducing operating costs.

5. Proven Superiority: Developed for the Armed Services, millions of Filcron cartridges have proved their outstanding qualities with the Army and Navy. The huge Fram 1946 advertising campaign will drive home the Filcron story to millions of motorists. Ask your distributor about the big money-making deals built around the new Fram Filcron filter . . . and ask every motorist, "How's your oil filter?" FRAM CORPORATION, Providence 16, R. I. In Canada: J. C. Adams Co., Ltd., Toronto.

Certain heavy-duty detergent oils cannot be filtered visually clean. Where these are used, filter cartridges must be changed on a mileage basis.





# FRAM Filoron THE MODERN OIL FILTER

FEBRUARY, 1946

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When writing to advertisers please mention Motor Age

63

### Turning the Spotlight on Finance Charges

(Continued from page 58)

service such as they obtain from finance companies.

Many dealers feel that by virtue of the fact that they create the business, they are entitled to a commission on the insurance charges in addition to a participation in the finance charge.

In many States, dealers are properly licensed as insurance agents. In Pennsylvania, steps may be taken by one or more of the large finance companies to license its dealers as insurance agents at a future date.

Despite the publicity that has attended the efforts of the finance probe in Pennsylvania, a few persons and companies continue their unscrupulous practices, thereby bringing discredit to a great industry.

Many ethically conducted and honestly operated companies in Pennsylvania are demanding a clean-up, via regulation, even though legislation may be a doubtful remedy.

Possibly small loan rates are still too high in Pennsylvania, but since

the adoption of a law regulating small loan companies, officials of the Banking Department have received very few complaints as compared with the hundreds complaining about finance charges.

With the demand for new motor vehicles far exceeding supply for many months to come, those who formerly depended on "finance reserves" and new car bonuses for their annual profit, should take time by the forelock in their used car allowances in the coming sales boom, and place their businesses on a sound operating basis just in case dealer participation in "finance reserves" is ultimately reduced.

However, you must remember that "trade-in" values are still regulated by the OPA, and if a dealer allows less than OPA says a used car is worth, he may be fined because the OPA insists that this is equivalent to raising the price of the new car.

### V. W. Bergenthal Retires At Wagner Electric Corp.



Wagner Electric Corp. announces the retirement on December 31, 1945, of V. W. Bergenthal as an executive officer of the company. Bergenthal, who will continue to serve as a director, has

been with Wagner for forty-one years since November 1, 1904, when he took his first position with the company as assistant sales manager. In 1913 he was appointed purchasing agent and served in that capacity until 1922. In January 1922 Bergenthal was elected a director, and in August 1922 he was elected treasurer.

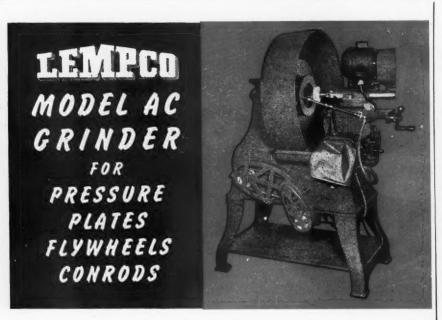
Bergenthal is succeeded as treasurer by J. D. Eby who has been elected secretary-treasurer of Wagner Electric Corp.

### **Aligning Nash Wheels**

(Continued from page 23)

loosening up on the clamp screws, and then turning the turn buckle (one for each tie rod) until you get the toe-in you want. The only trick to it is that both tie rods have to be the same length; otherwise, you will soon have one or the other of the tires bald headed.

That's easy to say, but a little harder to do because when it comes to measuring the length of the tie rods you generally have to measure around some corners, which is a nice trick if you can do it. So take a plumb bob and drop a line from the ends of the tie rod to the floor and then measure the distance between the marks on the floor.



### TURNS AND GRINDS AND ...

- \* 30" Swing
- \* 7" Cross Slide
- \* 16" Carriage Travel
- ★ For External, Internal, Face, and Taper Jobs
- ★ Finish Grinds and Rough Turns

### PATENTS MAKE JOBS

AUTOMATIC SIZER



Dial in dicator gauge shows operator exactly how far to grind successive pieces to same dimensions. Prevents spoilage. Makes easy work of tough jobs.

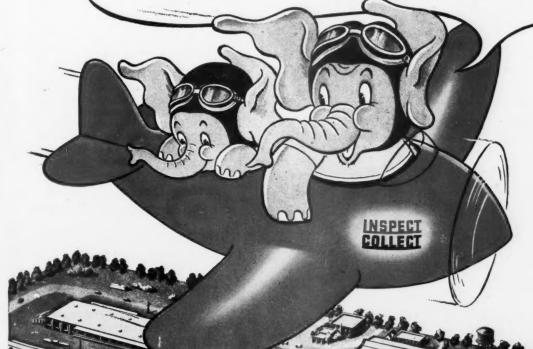
day automotive repair jobs. Grinds all 16 V-8 push rods at one time! Automatic sizing device assures same size on successive pieces. Ideal for grinding conrods to identical dimensions. Proved and improved by years of service in the biggest and smallest automotive machine shops throughout the world. Ceiling priced! Good delivery!

WRITE FOR CATALOG



5727 DUNHAM ROAD BEDFORD, OHIO

# THAT'S MAREMONT'S NEW MUFFLER HOME!



The continuing acceptance of the service outlets the ever-growing demand for MAREMONT MUFF-LERS, TAIL and EXHAUST PIPES—necessitated this move to a bigger factory.

Located at Harvey, Illinois on 19 acres, it has 270,000 square feet of manufacturing space devoted to the efficient production of more and more MUFFLERS, TAILPIPES and EXHAUST PIPES for more and more sales.

See your nearest MAREMONT Distributor for full details of the big 1946 merchandising program—a program which not hopes you sell, but HELPS you sell.

Manufacturers of Alloy Steel Springs

# INCE MARIE LA CONTROL Products, Inc. STORY MICE STORY MATERIAL CONTROL MATERIAL C

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### Showmanship Sells Service

(Continued from page 22)

Maybe you need new parts or accessories."

Another gag to see the light of day revolved around a miniature cardboard door, painted green, with an alleged tiny bronze knocker affixed to it. A doll knocked on the door, which was the cue for the following caption:

"No need to knock—Drive right in for service."

The "picture frame" setting is a

good one with innumerable variations for handling in a small window. As done by one independent, a gilded frame rested against the background. The frame interior was hollow when first installed, later being affixed with a small shelf, covered with black silk-cloth—the resting place for several cans of motor oils. Rear part of the frame was enclosed with the same black silk cloth. A sign in front of the frame was en-

titled: "A Study in Oils." For realism, on the floor area down front. there was an artist's palette, and tubes of oil paints and brushes.

There was the shop that had an ingenious "play" on its car washing service. They rigged up a small clothes line in their trim. Toy cars and trucks hung on the line, which had plenty of room to accommodate the others in the process of washing. Aforesaid washlady was a large girl doll, leaning over a doll's size wash tub, scrubbing away at a toy car, which hovered partly on the washboard and partly in the foamy suds. Other cars waited in line. "Every Day Is Wash Day," and "Careful Work and Prompt Attention," werethe showcard messages.

The display examples, as described above, will destroy the mistaken impression that a small show window is a worthless sales medium.

### New Line of All-Steel Garage Horses Offered

A comprehensive line of all-steel garage horses, with capacities of 3 tons, 6 tons and 8 tons, to meet the needs not only of garages that service passenger cars but also those that service light, medium or heavyduty trucks, has recently been placed on the market by Associated Producers, Inc., Detroit.

The horses are adjustable in height to 5 or 6 positions, ranging from 12 in. to 22 in., depending upon the model. An adjusting pin of hardened steel, which holds the movable cylinder at any desired height, is out in the open where it is clearly visible.

Among the other features of this new type of garage horse is a V-shaped load rest that prevents danger of slipping, and distributes the load uniformly over the frame members. It is also pointed out that, because of its inclined legs, the horse can be placed close to the end of the axle.

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Built exceptionally strong, with all joints electrically welded, each model is certified by laboratory test to carry a load 50 per cent in excess of its rated tonnage capacity.



"She takes their minds off cars we haven't yet got to sell!"



Differentials, transmissions and steering gears suffer costly abuse in winter weather when lubricants congeal. MARVEL Mystery Oil added to all gearing keeps greases fluid and maintains a protective film coating even in severest cold. That's because MARVEL Mystery Oil by itself pours freely at 70° below zero—100° below freezing! Added to crankcase oil, MARVEL Mystery Oil promises instant starting and smoothest running for even sub-zero motors. What's more, this sensational reinforcing additive

toughens film coatings to hang on at extreme high temperatures—
vital lubrication of oft-neglected upper cylinder parts is assured.
Added to gasoline, the solvent action of MARVEL Mystery
Oil goes to work on gums and carbon deposits, and frees sticky valves!

Why not reduce winter wear and worry for your customers—suggest MARVEL Mystery Oil today, for—
Crankease ..... To provide instant starting and smooth out engine performance.

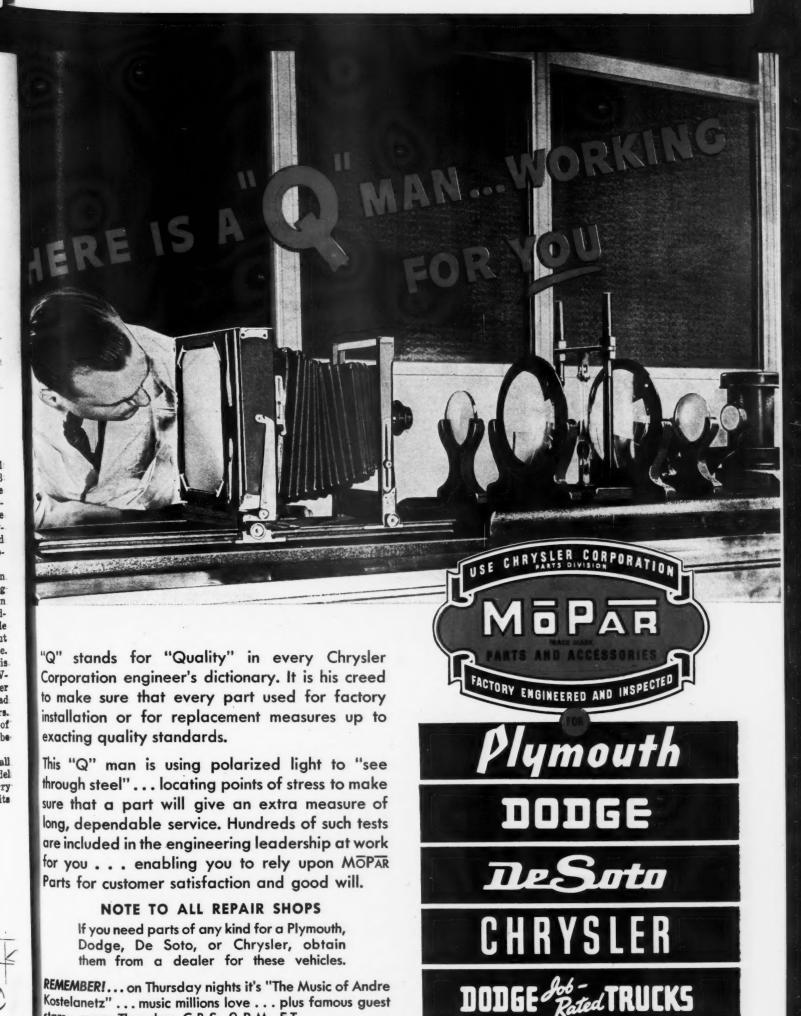
Gas Tank ..... To keep fuel system clean—gum and correction free.

Differential ..... To eliminate clash and strain.
Transmission .... To ease shifting.
Steering ...... To loosen stiffness.

EMEROL MANUFACTURING CO., Inc., 242 W. 69th St., New York 23, N. Y.

MARVEL MYSTERY OIL

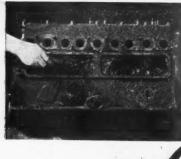




CHRYSLER CORPORATION - PARTS DIVISION, DETROIT 31, MICHIGAN

stars—every Thursday, C.B.S., 9 P.M., E.T.

GE.



### YOU WOULDN'T PUT NEW VALVE SPRINGS IN A DIRTY ENGINE

Don't do Half a Brake System Go Brake System Go



# N314/115

Putting new valve springs in an engine without thoroughly cleaning out the sludge and dirt would be pretty sloppy workmanship. Adding brake fluid to hydraulic lines that are gummed up and sluggish is just as impractical. Here's a condition that shouts "Puritanize".

It's easy to sell a "Puritanize Job" because you're selling safety-and it's easy to Puritanize with profit in these two steps:

- Clean out the old, inefficient and dangerous brake fluid with quick-acting, thorough Puritan Flushing Fluid.
- Refill with non-gumming "all miscible" Puritan Hydraulic Brake Fluid.

Your jobber will supply you with the 5-color 40" x 60" wall banner that sells "Puritanize Jobs" for you.



PURITAN COMPANY, INC. ROCHESTER, NEW YORK

### Super Service Plus

(Continued from page 27)

One of the most important points in selling service at the Schonlaw shop is the abolition of "red tape" as far as the car owner is concerned. Quick contact and the writing of one order is all the motorist faces as he drives into the building. There is no "graduated reception line" to befuddle him and delay badly needed repairs.

A job is determined quickly on in-

spection if there is some doubt as to the trouble. However, if the service required is lubrication, engine tuneup or brake repair, the car owner can spot the department hurriedly and drive right into it without undue delay. Signs are large enough to be seen from the entrance and equipment is grouped for convenience and fast service. Once this hurdle has been jumped by the car owner, he is certain that he will be given prompt attention in the shop. The Schonlaw organization stresses this by tackling the job on the spot.

The system of writing up one job order appeals to many regular and prospective customers because many of them have come out of the Armed services where forms and "paper work" have been done to death. By dispensing with this annoyance, as it appears to these car owners, the Schonlaw shop has put in a future bid for more repair work and service as time goes on.

Quick and excellent service are keynoted at Schonlaw's. This is what the postwar motorist receives at the sales and service building as he enters the shop. Customer satisfaction is assured when heavy response is received to a volume-builder such as this recent announcement sent by direct mail to car

"FLASH! We now have plenty of skilled mechanics-can give you fast service on mechanical repairs. . . Let us take care of your car needs now!"

This planned method of advertising service has a terrific amount of sales wallop and makes the car owner painfully aware of what his car is lacking in the way of repairs and service. As a result, this consistent system of selling service is bringing jobs into the shop which would have gone elsewhere, and at the same time is building a healthy margin of profit.

Added profits, plus a large solid list of satisfied customers is pushing the Schonlaw organization out front in the postwar rush for repair volume.

### **Appointed Sales Manager**

The Arrow Safety Device Co., Mount Holly, N. J., has announced the appointment of Charles S. Vanderblue as general sales manager. Vanderblue joined the Arrow organization in September, 1945, upon his release from the Army after four and one-half years of service.

# Inermote precision processing

MAKES EVERY BRAKE JOB

Here is how Thermoid "Precision Processing" saves you time, money and labor



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1. To reline brakes the Thermoid way, the first step is to merely remove the old brake shoes.



2. Your Thermoid distributor exchanges the old set of brake shoes for a set of Thermoid Precision Processed Brake Shoes, already lined.



3. You install the Precision Processed shoes, make routine adjustments, and the job is finished. The brakes will be Right the First Time!

### Thermoid Precision Processing is as Scientific as it sounds



4. The old brake shoes are checked thoroughly for distortion and wear, the old lining is removed, the shoes cleaned and painted.



5. Thermoid Custom-Built Brake Lining, certified correct for the car, is then applied to the shoe by precision methods.



6. The relined shoes are then precision burnished to assure absolutely accurate fit when installed.



7. Here's the result. Immediate, 100% lining to drum contact that gives "new-car" brake performance on every reline job.

NOTE TO PROGRESSIVE DEALERS: Thermoid Precision Processing Franchise and equipment will shortly be available to those interested in doing the complete job in their own shops and building the very substantial brake lining business that Thermoid Precision Processing attracts.



Show your customers this Pittsburgh Testing Laboratory Certificate. It is an independent, authoritative guarantee that each set of Thermoid linings is correct for the car specified.

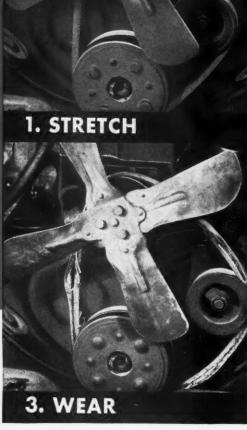
CUSTOM-BUILT BRAKE LINING SETS

plus

PRECISION PROCESSING

THERMOID COMPANY, TRENTON 6, NEW JERSEY

MANY FAN BELTS QUICKLY





Thermoid

PRE-STRETCHED



But THERMODIZED FAN BELTS last longer

because they are pre-stretched A Thermoid fan belt was remove from a Buick, and the weight of

horse suspended from
it. When put back of
the car, the belt per
formed perfectly of
the same adjustment
That's convincint
proof of the advantages of Thermodizes
Pre-Stretching.

Thermoid

THERMODIZED Pre-Stretched FAN BELTS

Get the greater sales and greater profits made possible by the Thermoid Fan Belt Program and the Thermoid Sales Reward Premium Plan. Ask your jobber, or write to

THERMOID COMPANY, TRENTON 6, NEW JERSEY

#### Pop Shifts to the Automatic Transmission

(Continued from page 29)

"Tommy here says you told him to order clutch plates for this job," he

"What's the matter with that?" asked Larry, without looking up. "Clutch is shot, ain't it?"

"I don't know. Have you examined it?"

"Not yet but-"

"Then how do you know it needs new plates?"

Larry straightened up. "Look, Pop," he directed in a tone that said his patience was being tried, "it's all right to talk to Tommy like that. He's just a kid. But this ain't the first automobile I worked on, see? When I say the clutch is gone, I mean the clutch

is gone!"
"But this car's got an automatic transmission and fluid flywheel."

"So what? It's got a clutch, too,

Pop plunged his hands into his wardl nockets and grinned. "You coverall pockets and grinned. wouldn't know. You ain't seen it."

"If I'm gonna be a helper around here," snapped Larry, offering Pop the wrench he held, "maybe it's time you took over."

"Keep your shirt on. All I want to know is how you figured it was the

clutch when you ain't touched it."
"You was here when Doc Fay
brought the job in. You heard what he said."

"Sure I did. He bought this car last week because his other car fell apart."

"Yeah, and this one's gonna do the same thing. Some war worker musta had it. It's got better than a hundred thousand miles on the speedometer, and I'll bet this is the first time it's ever been inside of a shop. No wonder the clutch is gone!"

Pop stroked his chin again. "You ain't answered my question. How do you know it's the clutch?"

"Do we have to go all over that again? Doc's drivin' along Route 48 on his way to make a call, and he stops for a red light and he can't get started again. The engine races but nothin' happens, except the clutch makes a terrible noise."

"Just what kind of noise?"

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"Doc Fay said it sounded like a fire siren," said Tommy.

"Well?" Larry asked Pop.

"Maybe you got me," said Pop, and Larry smiled. But Tommy noticed the twinkle in Pop's eyes and kept a poker face. "But," Pop went on, "I want you to pull the transmission and tear it down."
"But—" Larry started to protest.

"And then I want to look at it," added Pop, turning away.

Larry started to mumble under his breath.

"What did you say?" cut in Tom-

my. "I didn't say nothin', but I could

get twenty years for what I'm think-

Nevertheless Larry, with Tommy's help, pulled the transmission and started to disassemble it.

"I'd better call Pop," said Tommy. Larry scowled at first but then he shrugged and said, "Okay."

By the time Pop came out, Larry had driven the countershaft out the rear of the case.

"That's enough," said Pop.

"But I ain't finished."

Pop lifted the countershaft gear assembly from the case and studied it closely. Then he handed it to Larry and said, "Disassemble it."

Larry removed the free-wheeling gear snap ring, and, within a few minutes, had gears, washers, bearings and rollers spread out on the bench. Pop picked up the gear cluster. He looked at it a moment, then held it out so Larry and Tommy could see it. He pointed to the grooves in the forward end. "There's your trouble," he said quickly.

(Continued on page 72)



#### With Just ONE **NIEHOFF Service Stock** You Can Service ALL 3 **Major Auto Ignition Systems**

This new all-steel NIEHOFF Products Merchandiser with a complete stock of approved quality NIEHOFF parts, arranged in easy alphabetic and numeric order, makes a simple matter of servicing every one of the

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#### Pop Shifts to the Automatic Transmission

(Continued from page 71)

"Are you kiddin'?" asked Larry.

"I'm too busy to go around pullin' gags on you. Can't you see the way them grooves is worn?"

Larry touched them with the tip of a finger. "Yeah," he admitted, "They're worn a little."

"A little?" Pop exploded. "They're almost smooth!" He laid the gear cluster on the bench. "Does that look like clutch trouble?"

"No it don't," said Larry grudg-

ingly.

"What happened was this," began Pop, "the—"

"You don't have to draw no diagram," Larry interrupted. "I get it."
"But I don't," said Tommy.

"I'm glad there's somebody around here that's willin' to learn," said Pop, turning his back on Larry. He picked up the gear cluster again. "You see," he said, showing Tommy the roller grooves, "this transmission's got a



free-wheelin' unit."

"I didn't think there was any free-

wheeling any more."

"This is different. You see there's two speed ranges in this transmission -high and low. And there's two speed changes in each range. The transmission shifts automatically to the higher gear in each range when the car speed reaches a certain point-eight miles an hour in the low range—13 to 15 in the high range. But it don't happen till the driver lets up on the accelerator. That means the car is rollin' faster than the engine is turnin'. In a conventional drive, it's taken care of because the clutch is released, but in this automatic drive it ain't. So there's a free-wheelin' unit.

"The way it works is this: When you're in first speed in the lower speed range, the power flows from the mainshaft drive pinion to the countershaft free-wheelin' gear. Then through the free-wheelin' rollers to the first speed gear. That means the rollers is takin' the load every time you drive in first or third speed, and while the automatic shift up is takin' place.

"When you drive a car as far and hard as this one's been drove, the rollers just naturally wear out the grooves. And then some day you try to start, and the rollers don't hold. They jump outa the grooves and turn around the shaft. When you rev the engine, they make a terrific noise, like a siren goin' off."

Larry, who had been listening in spite of himself, tossed a wrench onto the bench. "How was I supposed to know that? I never worked on none of them cars before."

"You could at least have looked at the clutch before you told Tommy to order new faces," said Pop.

"But how did you know the trouble was in the free-wheeling unit?" asked Tommy.

"Well, I make it a practice to look for things besides my pay check," said Pop with a glance at Larry. "And, much as it seems to hurt some people," he went on, "I manage to read an instruction book, or a trade magazine once in a while. It's surprisin' the number of mistakes you don't make that way."

"Okay," said Larry, "I'll remember it every time I get an automatic transmission in here."

"It won't do you no good, except on two cars," said Pop. "The DeSoto and Chrysler is the only ones with a

(Continued on page 74)



USE NATIONAL CARBIDE R HIGHEST ACETYLENE YIELD

ACETYLENE GENERATORS

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#### New Scale Developed for Fuel Property Evaluation

Progressive development of new and reliable methods for evaluating motor fuels to replace the current inadequate octane number and other scales was reported at the Fuels & Lubricants Session of the 1946 Annual Meeting of the Society of Automotive Engineers at Detroit recently.

Work being carried on by groups

Work being carried on by groups organized under the Coordinating Research Council was reviewed by Donald D. Brooks, of National Bureau of Standards, Washington, D. C. He

explained that fuels already have outgrown the octane scale and extensions thereof, and that there is need for a scale to facilitate fuel blending computations and for an interchangeable scale to express relative engine performance. Of particular promise, he said, is the leaded triptane-heptane scale, which is expressible either as triptane number or "detonation index," extensible with accuracy to the upper limit of anti-knock quality, and definitely superior in important respect to present reference fuel scales.

Interest currently is concentrated on methods of evaluating aviation

fuels, Mr. Brooks continued, and with the expected early completion of experimental work it should be possible to provide an adequate basis both for evaluating the relative merits of present and proposed scales and the potential application of the triptane scale to motor test methods.

#### Pop Shifts to Automatic

(Continued from page 72)

transmission just like this."

"Yeah, I know," said Larry, walking around the car.

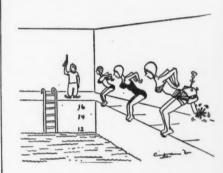
"I didn't," said Tommy.

"And there's plenty more mechanics who either don't know or don't do nothin' about it," said Pop. "They replace the clutch plates or the disk assembly and then before the job's hardly out of the shop it bounces right back."

"Gee," said Tommy, snapping his fingers as if he'd suddenly remembered something. "I'd better call up Mr. Davis and tell him we don't need those clutch parts now."

"Wait till Larry sees the old ones. It don't pay to jump at conclusions. I never done it since the time I started goin' with a girl because she said she hated men. I jumped to the conclusion I wasn't runnin' no risks with a girl like that."

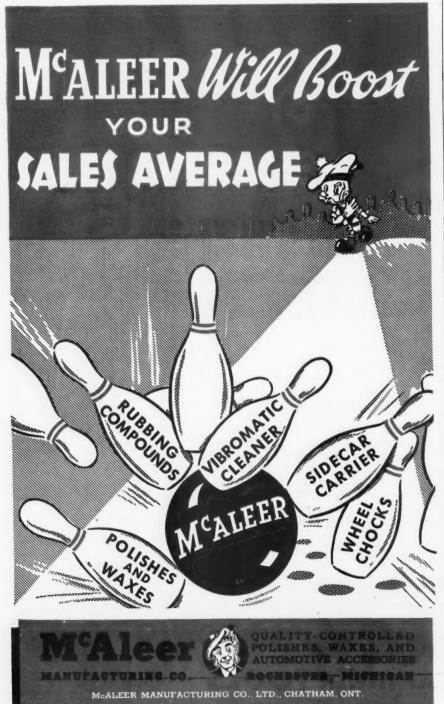
"What happened?"
"She's now Mrs. O'Neill."



#### C. R. Scharff Retires As Traffic Director

After 29 years of service with Chevrolet, Clinton R. Scharff, traffic director, is retiring from an active business career, it was announced by Hugh Dean, general manufacturing manager of Chevrolet Motor Division. He will be succeeded by William R. Lynch, employed in Chevrolet's traffic department since 1923.

Mr. Scharff's business career began in 1903 as office boy and clerk for the Lackawanna Railroad. His association with Chevrolet began in January, 1916, in New York, and later he transferred to Chevrolet's Central Office, Detroit, as traffic director. In 1937 he was made chairman of the General Motors Traffic Association by W. S. Knudsen, then president of General Motors.



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#### **Testing and Replacing Generator Controls**

(Continued from page 31)

#### **Current Regulators**

Current regulator units consist of one or two coils used in conjunction with a cutout relay and voltage regulator. Its function is to hold the generator to a maximum safe output. The current relay coils are in series with the generator output.

#### Adjustment of Regulators

Before doing any work on the regu-

lator, make certain all connections in the charging circuit are clean and tight. On regulators with 3 binding posts (battery, field and generator) resistance in the charging circuit will limit the output of the generator before the battery reaches full charge.

On Delco Remy units with 4 terminals (battery, field, generator and ignition), resistance in the 'charging circuit may be the direct cause of too high output, so the importance of

clean tight connections is readily ap-

Next, make certain the generator itself is functioning properly: See "Trouble Shooting on Generators" at the beginning of this section.

When the trouble is definitely placed in the regulator proceed as follows: Remove regulator cover (Auto-Lite covers are sealed on) and examine contact points for pits and burns. (Voltage and current contact points are the ones which are closed, cutout relay points are open when the generator is not turning.) Thoroughly clean regulator and relay points. If points are too badly pitted unit will have to be replaced.

Now check the regulator armature air gap. Gap should be adjusted to the correct clearance with the armature depressed until the points just barely touch. Adjust by moving the stationary points up or down. Next depress the armature down to its stop and check the contact point gap. It it not always possible to get both gaps exactly right; however, if they are not too far off the unit should function properly.

#### Resetting Charging Controls

After points are cleaned and gaps properly set, proceed with setting the regulator as follows, regardless of the number of terminals:

Disconnect the wire from the "BAT" (Delco) or "B" (Auto-Lite) lug of the regulator. Tape this wire as a precaution against fire. Connect one side of the test set ammeter to the "BAT" or "B" lug from which the wire was removed. Connect the other side of the ammeter to one side of the variable resistance % ohm max, capable of carrying 50 amperes, the other variable resistance lead to a good clean ground. This hook-up eliminates the battery and charging circuit and causes all the current to pass through the test set resistance.

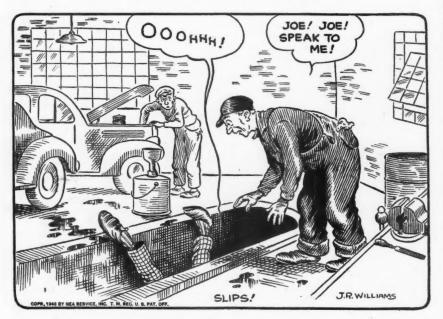
Connect one side of the voltmeter to the "GEN" (Delco) or "A" (Auto-Lite) lug (do not remove the wire from this lug) and the other voltmeter lead to a good ground. If the unit being worked on is a Delco 4-or 5-post regulator, disconnect the wire from the "IGN" post and connect a post and connect a short heavy lead between the "IGN" terminal and the "GEN" terminal. This will not harm the unit in any way.

On some commercial test sets, the resistance is inserted into the circuit by simply turning the resistance knob to the IN position. Since the internal hook-up and capacity of commercial test sets vary, it is necessary to apply the meters as recommended by the manufacturer of your own particular test unit.

Now start the motor and run at maximum charge as indicated by the ammeter.

On full current a voltage regulator (Continued on page 78)

#### OUT OUR WAY



Above is a portrait of a mechanic, deciding to take up some other business, when, as, and if he gets out of the hospital.

With Sol-Speedi-Dri, you can end the dirty, dangerous accumulations of oil and grease on the floors around your shop, garage, gas station, truck or bus terminals.

Sol-Speedi-Dri is easy to use and inexpensive. It cuts down accidents, falls, and the dangers of fast-spreading fire . . . it works while you work safely. Sol-Speedi-Dri, white, dry and granular, is oil-thirsty, absorbs oil just as a blotter does ink. Spread a carpet of it, wherever oil and grease accumulate and you immediately have a white, non-skid surface. Sweep it up, and the floor will be clean, dry, and safe. No more mess, no more slipping, no more back-breaking floor-cleaning jobs.

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#### **Testing and Replacing Generator Controls**

(Continued from page '76)

unit having 3 elements (relay, current regulator and voltage regulator), the element whose armature spring tends to separate the contact points is the cutout relay, the center element is usually the current regulator and the last element the voltage regulator. When setting the VOLTAGE regulator, some mechanics prefer to block the points closed on the CURRENT regulator, using a piece of wood or

fibre. This prevents interference by the current element when adjusting the voltage element.

Adjust the resistance until the voltage is high enough to cause the voltage unit to function (voltage regulator armature will begin to vibrate). Check the voltmeter reading.

If voltage is too high, bend the lower spring hanger on the voltage regulator so as to decrease the amount



"Yes, dear, I know it wasn't your fault This is probably a magnetic pole!"

of tension on the armature. This willower the voltage setting.

If voltage is too low, increase tension on armature spring until voltage is correct. When increasing voltage setting, be sure the resistance is set high enough so that the unit is still functioning (armature vibrating) when correct setting is obtained.

Leave the test meters hooked up as they are and block closed the voltage element points and adjust the current unit in the same manner as the voltage unit; that is—Increase the armature spring tension to raise the current setting; decrease the spring tension to decrease the current setting.

#### Replacing Charging Controls

Before replacing a 4- or 5-post Delco-Remy regulator with the later type 3-post regulator, make certain the new type unit has the correct polarity for the battery in the car. That is, do not use a regulator designed to operate with a positive terminal grounded battery on a car which has the negative battery post grounded.

Delco-Remy regulators with copper colored armatures are designed for positive grounded batteries. Silver colored (cadmium) armatures are for negative grounded batteries.

Auto-Lite regulators with the outside case painted brown are for negative grounded batteries. Cases painted black identify regulators for use with positive grounded batteries.

#### 4-Post Delco Regulators

To replace the 4-post standard duty Delco charging control with the later type 3-post unit, rewire as shown in Fig. 1. Take the wire from the "GEN" terminal on the defective regulator, and connect to the "GEN" terminal of the new regulator. In the same manner, the "BAT" and "F" wires are transferred to the new regulator. The wire attached to the "IGN" terminal of the old regulator is NOT USED. Simply tie the wire up out of the way, or cut it off close to the wire harness, and tape up the end as a precaution against fire.

#### 5-Post Delco Regulators

To replace the 5-post Delco regulator with the later type 3-post type, (Continued on page 82)







There's more profit in your future—when you dress up your lube department and improve its efficiency with the new ARO Center Island Lubrication Units!

Ideal for any lube layout these new compact units

Ideal for any lube layout . . . these new compact units save time and labor. The unit shown here has 6 automatic reels within easy reach to serve two lube racks—yet all hose and reels are concealed when not in use. This includes two reels for chassis lubrication, two for gear, one for water, and one for air. Available with any combination of reels for chassis, gear, motor oil, air and water. Automatic stops—automatic rewind.

Also available—Center Island Unit with 3 lubricant pumps for original container service. See your ARO Jobber for details. The Aro Equipment Corp., Bryan, Ohio.



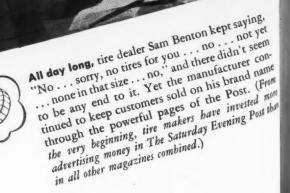
Unit with lower panel removed—shows compact mounting of reels.

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#### **Testing and Replacing**

(Continued from page 78)

follow the procedure shown in Fig. 2.

#### Installing Voltage or Current Regulators on 3rd Brush Generators

To install a voltage or current regulator on a generator which is not factory equipped, proceed as follows: Locate regulator unit in most convenient place. Now detach generator field ground. (There are four methods in common use for grounding the generator field winding.) The first is through a fuse usually located on the

outside of the generator body. See Fig. 3. The second is to attach the end of the field winding to the grounded main brush. The third is an internal ground, illustrated in Fig. 4, which requires removal of armature to detach. The fourth is through a resistance connected to the light switch. Connect field lead (which has been removed from ground) to the F terminal of the current or voltage regulator.

Detach battery lead from the generator cutout relay and connect it to the "BAT" or "B" terminal of the regulator. Now remove the generator lead from the cutout relay, and attach it

to the "GEN" or "A" terminal of the voltage or current regulator. If regulator has a terminal marked "G" or "GND," attach a short heavy lead from the terminal so marked to a good ground.

On Delco-Remy units, connect a lead from the "IGN" terminal to the ignition switch side of the ignition

Now adjust the current or voltage regulator as outlined in the foregoing text.

#### Two-Way Radio in Taxi

Two-way radiotelephone equipment was demonstrated at Chicago recently during the American Taxicab Association's convention. Through the use of a central dispatching station located in a nearby hotel, guest taxicab operators were shown how 2-way radiotelephone eliminated "dead mileage," back-tracking, and how radio could be employed in an emergency.



Calls were received and messages transmitted by the driver during the demonstration. Misinterpretations of addresses were corrected quickly simply through "call-backs" by the driver who simply pressed a microphone switch and contacted the dispatcher.

Equipment used in the test was of the Motorola 152-162 megacycle variety.

#### Piston Manufacturers Establish Show Policy

The Standardization Group, Piston and Piston Pin Manufacturers have announced that members will only exhibit, or support, one national A.S.I.S. show held every other year. In the alternate year, they will exhibit at no more than six geographically distributed regional shows, sponsored by the various automotive associations.

Members of the Standardization Group include: McQuay-Norris Co., and King Quality Products, Thompson Products, Inc., Toledo Steel Products Co., Wisconsin Machinery and Mfg. Co., Sterling Aluminum Products Co., Deluxe Products, Precision Parts Co., Aluminum Industries, Inc., White Machine Works, Ohio Piston Co., and the United Engine and Machine Co.



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#### **How to Hire Returned Soldiers**

(Continued from page 32)

vicemen who were auto mechanics in the Armed Services and whose skills would be useful to dealers and shop owners. Interviews can then be arranged at the employers' convenience. A lot of good work has been done by these agencies in the placement of veterans in shops throughout the country.

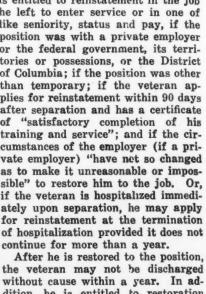
There are also two additional agencies which cooperate closely with Selective Service. They are the U.S. Civil Service Commission and the Railroad Retirement Board. While these agencies are primarily concerned with employment in government work and railroads, they have a fund of information available to aid veterans and employers alike.

If a veteran is looking for a new job in a shop, he may be referred tothe United States Employment Service. If he is having difficulty in getting his old job back in some automotive shop, then his Selective Service Board will endeavor to find a satisfactory solution to the problem by acquainting the veteran with his rights under the Selective Service Law. Lists of available men will be supplied to the shop operator by the U.S.E.S.

The law provides that the veteran is entitled to reinstatement in the job he left to enter service or in one of like seniority, status and pay, if the position was with a private employer or the federal government, its territories or possessions, or the District of Columbia; if the position was other than temporary; if the veteran applies for reinstatement within 90 days after separation and has a certificate of "satisfactory completion of his training and service"; and if the circumstances of the employer (if a private employer) "have not so changed as to make it unreasonable or impossible" to restore him to the job. Or, if the veteran is hospitalized immediately upon separation, he may apply

dition, he is entitled to restoration without loss of seniority, and shall be considered as having been on furlough or leave of absence during his period of service. He also is entitled to participate in inurance or other benefits "offered by the employer pursuant to established rules and practices relating to employes on furlough, or leave of absence in effect with the employer at the time such person entered mili-

(Continued on page 86)



tary or naval service." It is to the dealer and shop owners' advantage to conract the committeeman on the board just to acquaint himself with the number of veterans available who have been mechanics, and those who have learned the trade in the Armed services.



"No, no! That 'get acquainted' offer is for customers only!"

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#### UNITED WHEEL CYLINDER KITS

Sixty-two United Repair Kits for quick, complete service on wheel cylinders — all makes and models. All United Parts are skilfully engineered, made from finest materials, and manufactured with utmost precision. United Parts Mfg. Co., 1250 W. Van Buren St., Chicago 7.



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Twenty-five United Repair Kits, in cartons designed for quick

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part needed to service hydraulic brake master cylinders—all makes and models. Complete with pistons! Fast delivery from your nearby NAPA Jobber!

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He came home one day and saw his landlady climbing a ladder to do some painting. Big hearted Tony grabbed the brush, climbed the ladder, did the painting. He liked painting a lot.

"From then on I just painted my way," says Tony. He painted buggies and barns, houses and furniture, inside and out. Hired painters to help. Business boomed. Then IT happened.



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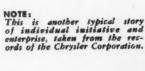
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IT happened when Tony bought a secondhand car, painted it up, sold it quick. Bought another, sold it. Still another and sold that, too. Tony was now painting his way like nobody's business.

Tony outgrew one sales lot after another. When the Dodge people talked to Tony about being their dealer, Tony said, "Sure, Dodge is the best car I ever painted." He acquired a building, equipment and an organization and sold a thousand cars the first year in business.

came he was doing \$3,000,000 of business a year. During the war Tony's shops were busy full time taking care of people who wanted "Tony's touch" for their aging war-time cars.

Tony is all set for the future. "I'm still sitting on top of the ladder," says Tony. "I've got the best new and used car business in the world. Those new Dodge and Plymouth cars are not only great cars-they're the best paint jobs I've ever seen."





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#### German Auto Industry Behind in Carburetion

The German automotive industry offered neither innovations nor was there anything new in the way of automotive carburetion, a subject of particular interest, according to L. E. Bogue of the automotive carburetor engineering department of the Bendix Aviation Corp., a member of the technical industrial intelligence committee who has returned from a three-months trip into Germany.

Bogue stated that Germany built their troop and heavy transport vehicles around the diesel engine as motive power, with the exception of tanks, in which the larger, heavier construction necessary for diesels was not adaptable. This resulted in little or no interest in advancing automobile and truck carburetion.

A factor contributing largely to the German defeat was not a lack of gasoline so much as the shortage of diesel fuel which broke down the transportation and industrial system.

Bogue, along with other technical experts, made a comprehensive study of the automobile industry to discover what the Germans had been doing and with the idea of bringing back samples of products and machines.

The findings of the committee will eventually be made available to American industry.

#### How to Hire

(Continued from page 84)

Experience in the Army, Navy and Marine Corp have given many veterans an adept knowledge of various automotive trades, and this ability is worth much to the dealer or independent who is building up a good shop crew from service manager down to the car washer.

The returning veteran is not a "problem." Men who have endured severe battle conditions are anxious to forget their experiences, and return to a happy normal way of life. With proper guidance and understanding, and without too much interference from over-zealous employers, veterans skilled in auto-notive trades will form part of a smooth-clicking shop crew within a few months.

#### Markley Appointment Announced by Sun Oil

Appointment of Frank R. Markley as general sales manager of Sun Oil Co. was announced by Samuel 3. Eckert, vice president in charge of marketing. Markley, formerly manager of the company's industrial products department, will serve as assistant to Eckert in the conduct of all sales activities.

Eckert also announced the appointment of Maximilian H. Leister as general manager of Sun's motor products department.

Ray H. Anders has been appointed to succeed Mr. Markley as manager of the industrial products department. Anders has been assistant manager of the department since September 15,

All three of the Sun Oil executives are veterans of company service who have worked their way up through the ranks.

#### **Election Announced**

Announcement is made by C. T. Ruhf, president of the Mack Manufacturing Corp., of the election of W. M. Walworth as vice-president and chief engineer.

Walworth has been acting chief engineer since March, 1945. He joined Mack in 1939, coming to the truck manufacturer after 12 years in the engineering department of Reo Motors, Inc., at Lansing, Mich.

Assigned first to Mack's Allentown, Pa., plant, he was soon moved to the New Brunswick, N. J., plant where he remained as executive engineer until his appointment as acting chief engineer of the Mack Manufacturing Corp. in March.



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FEBRUARY, 1946

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#### Parts Industry Studies Air Freight Service

The automobile and automotive parts industries are studying with interest plans announced by United Air Lines for inauguration of air freight service over its coast-to-coast and Pacific Coast system effective Feb. 1.

United's air freight tariff, filed with the CAB recently, shows rates as low as 27 cents a pound on shipments of 3000 pounds from coast to coast. Typical examples of the new tariffs are: 25 pounds from New York to the Pacific Coast, \$8.78; 100 pounds, \$33.63; 25 pounds from Chicago to Los Angeles, \$6.46, for 100 pounds, \$24.35. The tariff is based on minimum shipments of 25 pounds.

According to C. P. Graddick, the company's director of air cargo, charges are graduated according to volume and distance shipped.

Graddick said United will continue to carry air express on all planes, with the Air Express division of the Railway Express Agency serving as a nationwide pickup and delivery system. Air freight will be designed for the heavy package type of cargo, moving on less frequent schedules, with optional pickup and delivery.

United's air freight service will be inaugurated with use of three daily round trip flights which the company currently is operating from coast to coast with a fleet of twin-engined Douglas DC-3 Cargoliners.

Through contract arrangements with motor carriers, pickup and delivery service will be provided, at the option of air freight shippers or receivers, in the metropolitan areas of Boston, New York, Newark, Philadelphia, Detroit, Cleveland, Chicago, Denver, Los Angeles, Oakland and San Francisco. Such service will be extended to other cities. This will be separate from the air express pickup and delivery system provided by Railday Express.

#### **Chrysler Announces**

(Continued from page 25)

The popular "Town and Country" line that Chrysler introduced in 1941—an advanced development of "station wagon" type of vehicle—has been extended to comprise a brougham, sixpassenger sedan, club coupe and convertible coupe.

#### Lukens Elected President Overseas Auto Club

W. H. Lukens, manager of foreign sales of the R. M. Hollingshead Corp., Camden, N. J., was elected president of the Overseas Automotive Club at the 1946 election held recently. Lukens has been connected with the Hollingshead organization for twenty years. He is retiring chairman of the Export Credit Group of the Motor and Equipment Manufacturers Assn.

Other officers elected, according to an announcement by Bjarne Asper, export manager of Johns-Manville International, Inc., and retiring president of the Overseas Automotive Club, were as follows: 1st vice president, M. R. Sacra, manager American export dept., the Black and Decker Mfg. Co.; 2nd vice president, R. C. Thompson, export manager, The Electric Auto-Lite Co.; secretary, George C. Quisenberry, vice president and editorial director, Business Publishers International Corp.; Treasurer, J. F. Kelly, export sales manager, Electric Storage Battery Co.; and assistant secretary-treasurer, A. F. Houghton, automotive trade counselor, Business Publishers International Corp.

Board members elected for 1946 were E. R. Broderick, vice president of Muller and Phipps (Asia) Ltd.; E. L. Caswell, director of foreign sales, Thompson Products Co. of Cleveland, Ohio; and John C. Gallagher, president of W. D. Blood and Co.

The members of the Overseas Automotive Club represent approximately 800 automotive manufacturers engaged in overseas trade.





#### "I HAD EXIDE POWER ON MY BOMBER"

"And Exides sure gave good service. That's why I want Exide Power in my car. Other veterans say the same. We saw Exides everywhere—on trucks, jeeps, tanks, planes, ships, bulldozers—nearly everything that moved."

So it's no wonder Exides were so scarce at home, but Exide dealers will quickly make up for lost time... will be able to supply the battery customers want. Car and truck owners know Exides, have confidence in them. That's why Exides are so easy to sell. And continuous national advertising, plus "know how" merchandising service for the dealer, keep sales and profits climbing.

More than ever before "It's good to be an Exide Dealer."

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 32 • Exide Batteries of Canada, Limited, Toronto

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#### Army "Duck" Has Automatic Inflation

(Continued from page 37)

ing pressure joint which is attached to the wheel hub by means of special studs and set screws. The inner or rotating member turns with the wheel, the outer or stationary member is restrained from turning by a flexible strut arm attached to the body of the vehicle. The air hose connecting the air line and the hub is carried within, and protected by the strut arm.

Within the rotating joint is an air

seal. This is located at the point where the hardened-steel nose piece of the rotating member is in contact with the plastic disc of the outer or stationary member. By accurate grinding of the nose piece and a fine adjustment of the plastic disc an airtight seal is obtained. A special, precision, heavy-duty ball bearing, maintains close alignment between the two members and insures long life for both the joint and the air seal.



"Well, Stupid, what's wrong this time —the tringe?"

Special precautions were taken to seal the unit against sand and salt water. A large spring-loaded seal of synthetic rubber is extremely effective in preventing the entrance of salt water. Its design permits the release of pressure from within caused by the rapid expansion of heated air or when the unit is lubricated. An auxiliary outer seal prevents the entrance of dust or water-borne sand.

Controls for operating the system are accessible to the driver. The main control valve for inflating or deflating is located on the instrument board directly in front of the driver. To the right is the tire pressure gauge which shows tire pressure at a glance. Just above the gauge is a plate giving the correct operating pressures for various ground conditions. Individual valves for each of the six air lines are located on the left side of the gunner's seat within easy reach of the driver. These are used to shut off one or any combination of air lines to the tires in order to maintain pressure or to force more air to a damaged tire.

The "Duck" is equipped with an 11.00 x 18 desert-type tire which has relatively few plies. This permits the tire to flex easily and to increase considerably its ground contact area when the air pressure is reduced. For highway operation, the tire is inflated to 40 pounds pressure. Reduced to 12 pounds pressure, it rolls over the soft ground instead of digging in. In crossing sandy beaches, low tire pressure is necessary to secure flotation and traction, but beyond the beaches, operation at these low pressures would ruin the tires in a very few miles. To insure proper traction and longer tire life, the pressure is regulated to suit the type of terrain over which the vehicle is being driven.

The story of the evolution of central tire inflation goes back to June, 1942, when the first "Duck" took to the water. On the early models, air was compressed by a five cubic foot, low speed, air cooled pump which was operated by a chain drive from the transfer case. The pump was engaged by a lever operated by the driver and the compressed air was piped to a storage reservoir. Two in-

(Continued on page 92)

Conversion kits have all the



SOLD ONLY THROUGH AUTHORIZED JOBBERS Complete line of kits to service over 90% of all cars and trucks. Engineered for maximum efficiency and safety. Furnished completely assembled for quick and easy installation. Assures more satisfaction . . . insures more sales.

autopart

AUTOPART MANUFACTURING COMPANY

1323 SOUTH MICHIGAN AVE. . CHICAGO 5, ILLINOIS



FEBRUARY, 1946

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#### Army "Duck" Has Automatic Inflation

(Continued from page 90)

flation hoses were piped from the storage tank and coiled in a rack, ready for instant use.

Inflation and deflation of the tires had to be done by members of the crew when the "Duck" was stationary on land. Entirely too much time was required for this operation considering the fact that the vehicle and its crew, of necessity, were exposed to enemy gun fire, and a stationary "Duck" often became a "dead duck."

In an attempt to speed up the operation, various tire companies were contacted. One of them submitted a valve which screwed on the existing valve stem. A turn of the regulating screw deflated the tire to low or sand pressure. High or road pressure was obtained by inflating with the pressure hose—the valve blowing off when the desired tire pressure was reached.

Additional time was saved by the installation of a high-speed, water-

cooled pump that had double the capacity of the original pump. This improvement, in combination with the pressure regulator valve, reduced considerably the time required to inflate or deflate the tires.

This led to the investigation, in September, 1942, of the possibility of inflating and deflating the six tires simultaneously with the vehicle in motion. The first design, completed on Sept. 24, 1942, was a single air hose connection attached to a running joint on each hub. The valve core was removed, and the air pressure regulated by a device, operated by the driver, which gave high, medium or low tire pressure.

Six sets of the inflation devices were installed on as many "Ducks.' It was estimated this new device effected a saving of 20 minutes over the first method. Although the running joint was a step in the right direction, It failed both in water sealage and through breakage caused by striking objects in the water. As the valve core had been removed, a damaged hose or running joint resulted in the loss of air in the tire.

To overcome these faults, a twohose design, which retained the valve core was built. The larger hose was for inflation. Deflation was made possible by the smaller hose which was connected to the engine vacuum. A more rugged type of running joint was developed and a protecting cover was used for the air tube from the wheel hub to the valve stem. A diaphragm in the hub device, actuated by the engine vacuum, depressed the valve core by means of a wire running from the hub unit to the valve This design was discarded when it proved too light in construction, was slower in action than the one hose system, and gave uneven inflation to the tires.

From October, 1942, until February, 1943, many tests were made of the various designs. The final result of the tests was the present perfected central tire inflation system, which was released for production on Feb. 17, 1943, and has been incorporated in all "Ducks" built since that time.

Its use on the "Duck" has brought widespread comments from commercial vehicle and tire men alike who see possibilities of its application to postwar vehicles.

#### Returns to Brakeblok

M. B. Terry, manager of original equipment sales, announces that after three years' service in the Navy, George R. Coffin has rejoined the sales staff of American Brakeblok Division of American Brake Shoe Co., and will handle original equipment sales of American Brakeblok brake lining to automotive and industrial manufacturers in the Midwest area.



#### FAST ACTION - EASY OPERATION

Simply push on body of free jaw, which slides swiftly on ratchet screw and precision guide rods. Tighten with a turn of the loose-proof handle. Balanced precision grip holds firmly and evenly at all points, between serrated jaws, heat-treated and hardened, and integral with body of vise.

#### OPENS INSTANTLY TO FULL 3 INCHES

Just press on trigger after tension is eased by single turn of handle. Trigger releases ratchet screw and steel spring on lower guide rod, and automatically shoves free jaw out to full opening. Vise is ready, without further adjustment, for instant closing on other work.

SPATTER-PROOFED with copper plating on all working parts. RUST-PROOFED with wrinkle enamel finish.

Time Saving LYNN Quality Tools

Distributed Internationally by

LYNN PRODUCTS CO., lac.
319 EAST ONTARIO ST., CHICABOTT, ILL.
Aux for Complete Cotolog on Great Speed Vises and Change



#### SELL DU PONT RADIATOR SERVICE THIS SPRING



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Millions of car and truck owners will soon need spring radiator service. Start booking jobs now, arranging to drain out the anti-freeze, and clean out winter's accumulation of rust and scale with DU PONT COOLING SYSTEM CLEANSER. It's quick, safe and sure. It dissolves rust chemically, making it unnecessary to remove the hose or do other mechanical work. It is highly efficient and thoroughly dependable.

Millions of motorists will need this service soon. It's your opportunity. Cash in this spring.

#### MAKE RADIATORS LEAK-PROOF



After cleaning out the cooling system, you can make it leak-proof by pouring in DU PONT COOLING SYSTEM SEAL-ER. It prevents leaks, without interfering with the circulation.

#### MAKE RADIATORS RUST-PROOF

After cleaning out the rust, you can keep rust out all season by pouring in a can of DU PONT Acid & Rust INHIBITOR. It also prevents acid developing.



**OPON** 

NO.7 LINE

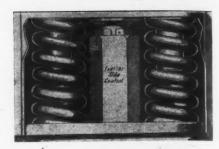
BETTER THINGS FOR BETTER LIVING ... THROUGH CHEMISTRY

#### New Tandem Axle Trailer Suspension Introduced

A system of vehicle suspension for installation on tandem axle trailers for heavy duty service—a coil spring suspension having many interesting features—has been introduced by Feather Ride Inc., Portland, Ore. Listed among its principal advantages are the following claims: the use of underload springs, self-contained coil spring units with built-in frequency snubbers, reduction in dead weight, elimination of axle kick-up on fast

braking stops, simplification of parts and interchangeability of the parts, elimination of chassis lubrication points, automatic steering that reduces tire scuffing, a load indicator, clean appearance.

The spring element consists of a completely enclosed housing containing two sets of nested coil springs, so arranged that when the vehicle is empty or lightly loaded, the suspension is carried on the small and more flexible underload springs. For heavy loads the suspension rides on the heavy main springs. Stability, by



virtue of small deflection, is achieved by limiting the deflection of the main springs to a maximum of two inches.

The spring housing also contains the Feather Ride Control, a simple mechanical snubber which may be seen installed between the springs. Its action depends upon the movement of three metal shoes which slide up and down within a tapered cylinder. Upon impact the shoes are expanded against the cylinder by a wedge. They return to normal position by the action of the coil suspension springs. Cylinder and shoes are self-lubricating and require no attention.

The suspension is attached at two points to the frame-directly ahead of the front axle and ahead of the rear axle, which is the location of the spring housing. The design of the leverages is such that 25 per cent of the load is carried by the front bracket and 75 per cent by the rear bracket. This reduces the loading on the spring member to 75 per cent of the actual load. The springs at the rear provide a cushion between the frame and axles at both points since the trunnion is arranged to float and carries no load. The load imposed on the frame is distributed equally between the two axles.

## Cam Check Automatic Ratchet Lock Sturdy Frame Deep Throat Adjustable Jaws

Operating

Handle

#### THE LITTLE GUY'S GOT SOMETHING THERE!

Fact, he's got everything—everything that makes the K-D 380 so versatile and easy to use. Turning the hand wheel on the first spring sets the depth of the plunger bar and the automatic ratchet engages. On all other springs the speedy operating handle is used, the overcenter cam lock holding spring compressed. Two sets of adjustable jaws. Sturdy steel frame, strong enough for any job within its capacity, old or new, L-head or valve-head. See the whole line at your jobber's or write for catalog to K-D Mfg. Co., Lancaster, Pa., and Hamilton, Ont.

K-D TOOLS
The Hustlers for Your Toolbox!

#### **Oil Filters**

(Continued from page 39)

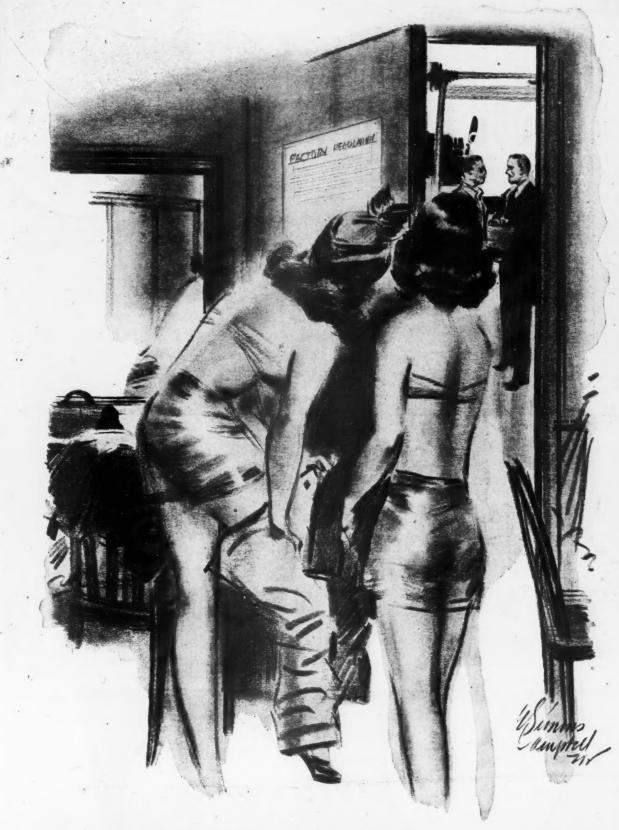
conditions, wear can be reduced as much as 50 per cent if an oil filter is installed. Even particles materially smaller than the bearing or piston clearance will cause wear, for under conditions of extreme load and when starting, such clearances are not maintained and consequently the abrasive particles will scratch and wear the surfaces of the bearings.

Filters, by removing the solid matter and other impurities, reduce the clogging of piston rings, thereby reduce the consumption of oil.

The installation of an oil filter and periodic renewal of the element is therefore not only a sound investment on the car owner's part, but also a profit maker for the shop.

#### Appointment Announced

C. E. Wilson, president of General Motors, announced the appointment of Edward Riley, vice-president, to succeed J. D. Mooney as executive in charge of General Motors Overseas Group of Operations.



"I recognize his 'line'—·
he must be a Weatherhead Salesman!"

THE WEATHERHEAD "LINE" - FITTINGS - FUEL LINES - DRAIN COCKS - DASH CONTROLS - BRAKE PARTS

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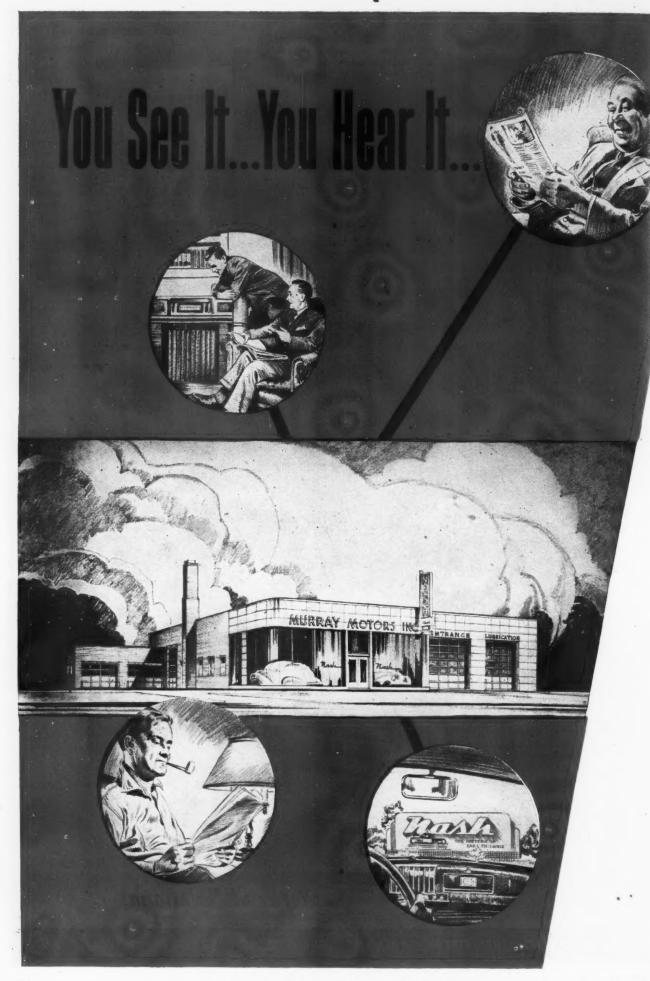
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## You Read It

How much advertising support should a dealer expect?

The Nash answer is famous!

For as far back as dealers remember . . . in lean years as well as fat . . . Nash has never spared the advertising pressure in driving home its story year after year after year.

During the war . . . in contrast to national trends . . . Nash supported its dealers' markets when there were no cars to sell . . . continued its driving prewar pace with full-page, 4-color ads in national magazines.

And now . . . look at the current Nash advertising . . . advertising that paved the way for sales months before the production lines were rolling—

- ... Big beautiful 4-color ads ... with illustrations by the famous Howard Scott ... are appearing in the mass circulation magazines!
- ... A nation-wide newspaper campaign ... giving local coverage to every dealer... is appearing in the newspapers Nash prospects read and buy from!
- ... Billboard posters ... each strategion cally located in all dealer sales

areas . . . are covering the country!

radio program—"N-K Musical Show-room"—is sponsored by Nash over the entire CBS network . . . with the popular Andrews Sisters, Curt Massey, and the distinguished "Green Room Award" to leading stars of stage, screen and radio!

In addition, Nash dealers know they will blanket America's two most profitable markets . . . the low and medium-price fields . . . with the two advanced cars in these fields . . . the Nash "600" and the Nash Ambassador.

Ninety-plus per cent coverage of all price classes!

Nash dealers know, too, they have the franchise that fits today's postwar selling because it means more market, more cars, more sales and profits per dealer.

Yes . . . with Nash advertising . . . you'll see it, you'll hear it, you'll read it . . . and that's why so many people say—you'll be ahead with Nash.

#### NASH MOTORS

Division of Nash-Kelvinator Corporation, Detroit 32, Mich.,

## YOU'LL BE AHEAD WITH Thask



Tune in Nash-Kelvinator's hit musical program Wednesdays 10:30 p. m. E.S.T. • 9:30 p. m. C.S.T. • 8:30 p. m. M.S.T. 7:30 p. m. P.S.T.

AGE

#### **Auto Industry Starting to Roll**

(Continued from page 42)

per cent of the steel used by the company. Normally, Ford produced only about 40 per cent of its own needs. An additional complication is that Ford must supply some suppliers with steel, since they cannot get it elsewhere.

Ford production Jan. 17 was 2635 The breakdown was 1387 Fords; 163 Mercurys, 39 Lincolns, 517 commercial cars, 529 trucks, and 12 transit buses. It was the first time the company had exceeded its sched-

Packard recalled about 1000 workers the middle of January and assembly lines again are operating, but on a hit-or-miss basis. Production during the last half of January was erratic, varying from as low as 50 cars a day to more than 200. A transmission bushing, which was the principal shortage which caused the shutdown at yearend, now is in adequate supply, but engine bearings still are troublesome and likely will continue so until the General Motors strike ends. The company had on hand, when production resumed, about 1000 bodies from Briggs, and if the glass strike is still on when these are exhausted, will probably have to close. down again.

Nash, which also closed down in December is expected to be running again by the first of February. During the forced suspension of assembly caused by the lack of glass, sub-assemblies have been built ahead and with glass again available, the production curve should climb rapidly. A spokesman for the company says there is no other item in short enough supply to halt production.

Hudson also is still in production, but is having considerable trouble with components, principally glass. Studebaker is going along at a steadily improving rate, having accumulated a sizeable bank of parts while shut down because of the Warner Gear strike last year.

Chrysler Corp. gives out no figures on production, but it is known that output of Plymouth, Dodge De Soto, and Chrysler cars is building up. Dealers have been sampled and public showings announced. Shortage of glass is reported holding up any sizeable increases among all companies except Ford. In fact, many cars and trucks have been shipped with cardboard instead of glass in some windows and in one-half of the wind-shield. It is reported that at least one company has been shipping cars for export without any glass, or any commitment for eventually supplying it. It is likely that in some tropical countries, the cars may never have any glass installed at all.

#### **Production Plans for** Three-wheel Car Revealed

Emil Buehler of North Haledon announced that he hopes to have a 3wheel car in mass production by sum-The new car, to sell in two models for \$350 and \$500, will be finished in a few weeks, he said.

The next step will be construction of a 40,000 square-foot building for \$100,000 on Route 17, at the Lodi boundary in Hackensack, N. J.

Last year's model had two standard front wheels and a smaller rear wheel. The new model has three standard size wheels. The engine will be a 2cylinder, horizontally opposed air-cooled type with half the horsepower of standard sized cars.

Maximum speed would be about 50 miles an hour, according to Buehler. Wheels, tires, and brake system would be standard to facilitate operation in all parts of the country. It would provide mileage of 75 miles to a gallon. Its weight would be only 500 pounds, and would carry two passengers and their baggage.



#### **Revolutionary Engine to Power** NEW ERISLE

a FINE car

Imagine a 4-cylinder, water-cooled, 26.5 h. p. engine that weighs only 59 lbs! That's the revolutionary Crosley engine that will power the fine new Crosley. This beautifully balanced power plant turns up 5300 rpm (at 60 m.p.h.) and has sensational 71/2-to-1 compression ratio, thanks to uniform steel compression chamber walls. Block made of steel tubing and stampings, copper-brazed. From bumper to bumper, inside and out, the new Crosley is different-a fine car every family can own! Watch for it soon.

Add to your vol-DEALERS ume and profits ATTENTION! in 1946! Valuable Crosley franchise now open to aggressive, established franchise dealers. Write in detail on your letterhead; give experience, facilities, bank reference. Fine new Crosley in production early in '46,

Address: POWEL CROSLEY, Jr., President, CROSLEY MOTORS, Inc. Cincinnati 14, Obio

so write immediately.

## Goodby Brake LAG-HERE'S POSITIVE CONTROL!

ROLLED

COMPLETE Compound

CYLINDER ASSEMBLY

3 Steps in HYCON Operation:

#### HYCON

Compound CYLINDER
Eliminates Vacuum "Boosters"
on Trucks and Busses

The single HYCON unit does hydraulically the combined jobs of fluid-vacuum-air brake systems; gives greatly improved braking control. With HYCON, all pressures are hydraulic

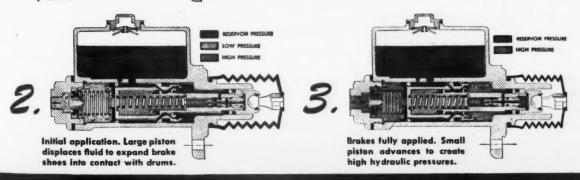
pressures. In direct proportion to pedal pressures, they always deliver the exact amount of power to meet load or noload conditions, whether motor is running or not. The secret of this controlled braking is in a second piston—hydraulic, not atmospheric—contained in the single HYCON compound cylinder.

#### Simpler, Safer, More Economical

The greater safety factor in HYCON braking results from quicker stopping; better control. Savings begin with installation... first cost is less... reduced fuel consumption and tire wear... no air-vacuum parts to be serviced. The unit occupies no more space on the chassis than the original equipment cylinder; requires no additional tubing, and can be installed within an hour.

#### Send for Demonstrator Unit!

HYCON Truck Brakes are now built to replace 1¼" and 1½" Di. original equipment cylinders. Write for free descriptive booklet. Order a demonstrator unit from your local power brake distributor, or write direct to The New York Air Brake Company, 420 Lexington Avenue, New York 17, New York.



ONDARY PISTOM ASSEM PASS HOLE GING VALVE ASSEMBLY DISTER VALVE CHECK DISTER CHAMBER

THE NEW YORK AIR BRAKE COMPANY

420 Lexington Avenue, New York 17, New York

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## New Car Buyers



August 24th, 1945.

Mr. Moward Dowdall, Parshall-Dowdall General Tires, Inc. Mr. Howard Dowdall, 1133 Main St., Buffalo, 8, N.Y.

With new car production so close at hand, we are wondering With new car production so close at nand, we are wonder if General Tire will have a similar change-over plan to Dear Howard: the one which we so satisfactorily used before the War.

The public has become so General Tire conscious during The public has become so General Tire conscious during the last few years that we feel a large percentage of the last few years that we feel a large percentage of our Cadillac owners will want nothing but General Tires on their new cars at the time of delivery. As soon as an information concerning the change-over on their new cars at the time of delivery. As soon as you receive any information concerning the change-over plan you receive any information concerning the change-over F we would appreciate very much your passing it on to us.

MAXSON CADILLAC-PONTIAC CORPORATION

C.J.MAXSON, JR./h

### WANT General Tires!

Wartime driving has so strongly emphasized the importance of <u>buying the best</u> in tires that TODAY car owners want General Tires . . . and nothing less!

For the next two years, you face a market of car-hungry and tirehungry Americans whom the war has taught —"It pays to buy the best!"

Only Top-Quality Generals give them all the proved extra performance and ultra-smart appearance they want.

The General Tire has always been the only premium tire that attracts car buyers to "Change-Over" from equipment tires—to

pay more to get more. And now, the new Top-Quality General the greatest tire ever built—is coming soon!

The General Tire Car Dealer Plan offers you an exclusive agency for the recognized tire leader... a market already presold on Generals... and a profit proved tire merchandising plan that has regularly grossed at least 331/3% for car dealers. Write today for details.



THE GENERAL TIRE & RUBBER COMPANY . AKRON, OHIO

#### **Obstacles Blocking New Car Production**

(Continued from page 41)

freely competitive mass production industry with even 'just a little' government price control. When you fix prices you control every production operation. Fixing the price of a casting made in an Alabama foundry may mean forcing a wheel manufacturer in Ohio out of business, and stopping an automobile assembly line in Detroit.

"Nobody wants 'runaway' inflation but if we continue to stifle American industry's ability to produce, that is exactly, in my opinion, what we are heading for. Inflation exists when there are too few products for people to buy with the money they have. Inflation grows out of scarcity.

"I am not an economist. There may be sound reasons in the public interest for continuing price control on such things as rents and foods. But so far as motor car manufacturers and their suppliers are concerned, I am now convinced that if Government control of prices is removed promptly, management and labor will settle their differences without running to Government—where price fixing is now forcing them to go.

"Americans will soon be able to

"Americans will soon be able to get the products they are eager and able to buy. And we will in a very short time be back to the kind of operation that American like best—finding way to make money by beating competition to market with something better and cheaper.

"Whether or not you agree with these views, I want you to know that if we can have promptly an uninterrupted flow of materials, our employes can go back to steady jobs and help us to get to Americans the motor cars and trucks they are waiting for."

#### **Mooney Joins Willys**

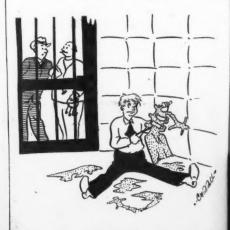
(Continued from page 41)

There are no changes in the basic ownership or control of the company, it was announced.

"Teday's developments," Canaday said, "are designed to increase our activities for the tremendous job ahead and to give more freedom to the executives for the specific tasks which the program involves."

On Mooney's resignation from General Motors last week, Alfred P. Sloan, chairman, paid high tribute to his important part in building up the corporation's business in the foreign field.

In leaving General Motors, he relinquished the following positions: member of the board of directors, member of the administration committee, vice president and group executive in charge of the overseas operations of General Motors. He will move to Toledo and will devote all his time to the expansion program of Willys, now engaged in the production of its "Universal Jeep," and preparing for volume manufacture of a station wagon, two truck models and a passenger car at an early date.



"This is a particularly sad case—He had 4 C coupons, 8 B's, and 5 A's left when gas rationing ended!"



There's profit and a heap of satisfaction in making sure the brakes are working right on every car you service

That's why it pays to keep asking. "May we check your brakes?" and to keep reminding car owners that "Brakes Go Bad Gradually".

And when you reline brakes you'll find the extra performance qualities of GATKE Brake Lining makes many a lasting friendship.

GATKE Brake Lining is available in different types to meet all kinds

of service requirements from the man who wants the extra comfort and dependability of Blue Ribbon Grooved Sets to the man who needs the extra performance at low cost of Standard Car Sets.

GATKE Simplified Catalogs make it easy to select the GATKE Brake Lining Set best suited for each application. Tell-All Labels on boxed sets avoid errors; drilled and countersunk liners speed application.

GATKE Brake Lining offers many more time saving and friendship winning advantages. Ask your GATKE Jobber or write.



Your NAPA Jobber
is a Good Man to Know!

WHY? The finest and broadest group of lines available to any jobber from a single, nearby source... An organized system of supply and operation which gives your NAPA Jobber more time to devote to your problems in servicing cars, trucks, buses and tractors of all makes... You can be sure of quality and complete cooperation, wherever you see the NAPA Seal.

NATIONAL AUTOMOTIVE PARTS ASSOCIATION . DETROIT 1, MICHIGAN



is the largest Independent Parts Organization in the Industry!



BROWN LIPE Spicer allied GRAPHO BALKAMP STANDARD DETROIT *uifalo* Microlest CELORON DUCKWORTH RARITAN HOLLE BLAPINGS New Britain PRECISION UNITED MARTIN-SENOUR DOUBLE FEDERAL Belden DIAMOND

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#### More New Car Prices

(Continued from page 54)

De Soto Custom			2-door sedan	987	946
4-door sedan	1228	1142			
2-door sedan	1203	1132	Ambassador Six Series		
club coupe	1219	1132	Breughham	1165	1134
	1610	1102	A door codes		
Chrysler Royal			4-door sedan	1179	1144
	4004	4440	2-deer sedan	1084	1110
4-deor sedan	1264	1167			
2-door sedan	1236	1144	Lincoln model		
3-pass coupe	1142	1065	4-door 73 sedan	1799	1700
club coupe	1261	1158	club coupe, model 77	1784	1700
		*****	4-door custom interior	1915	1795
Chrysler Windsor			elub coupe custom interior	1900	1795
4-door sedan	1352	1244	onun coupe custom interior	1900	1/90
9-does andon			Marcal Control		
2-door sedan	1301	1209	Ford		
3-pass coupe	1204	1129	De Luxe Eight		
club coupe	1318	1217	chassis with open or closed end	676	633
			Super De Luxe Eight		
Nash 600 Series			convertible coupe	1124	1083
Broughham	1038	961	station wagon	1170	1116
4-door sedan	1041	971	chassis with open or closed end	744	688



CAMEL quality has not varied from the top in the last 23 years, constantly improved by strict laboratory control to meet the increased driving speeds of modern motoring. CAMELS are coming back from the global wars to keep America on the highways with the same unqualified guarantee of absolute customer satisfaction.

This new hermatically factory-sealed package is absolutely water repellent. This insures a perfect rubber patch and heat element when used, CAMELS are made better and packed better.



Other CAMEL Products available in the complete line are: Quick Cure Gum, Tube Repair Kits, Garage-size Kits, Vulcanizing Cement, Rubber Cement, Tire Patch Cement, Vulcanizing Kits, and Valve Stem Heat Units.

#### Lead Restrictions May Cause Battery Shortage

"Unless governmental restrictions on lead now controlling automotive battery production can be lifted or eased during the next few months, the American motorist will be faced with an increasing shortage of batteries during 1946," according to Royce G. Martin, president of The Electric Auto-Lite Co.

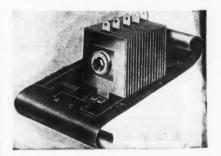
"Allocations of lead for the first quarter of 1946," Mr. Martin said, "will allow the battery industry to produce a quantity equal to 22 per cent of the total replacement batteries produced in 1944. While this lead allocation is slightly in excess of the corresponding period for 1945, it is not as favorable as the allocations for the third and fourth quarters of last year.

"This lowering of lead allocations plus the fact that the replacement battery market is inflated approximately 40 per cent is contributing to a critical situation in the months to come.

"We," Mr. Martin concluded, "and I am sure other battery companies are doing the same, are urging our dealers to offer the best possible battery service to their customers in order to prolong the life of batteries now in operation—especially during the cold months ahead when battery service calls are most prevalent."

#### New Self-Cooling Copper Sulphide Rectifier Offered

The Benwood-Linze Co., St. Louis, has announced the development of a dry disc metallic rectifier which does not require forced cooling. This rectifier is rated 50 amperes for 6 volt automotive battery taper charging. Two rectifiers may be operated in parallel from separate transformer



secondaries to provide 100 amperes maximum charging rate without a fan.

Battery chargers of this type operate from the usual 110 volt AC power supply, to deliver the required rating of DC to the battery.

This new rectifier makes possible, for the first time, the design of fast battery chargers rated 50 amperes without any moving parts.



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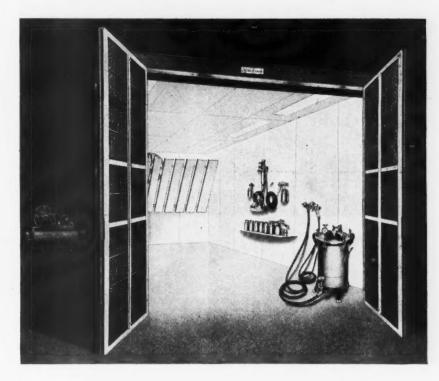
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## THIS HUGE PAINT JOB MARKET is rolling past your door!

Turn it into Bigger Profit with a New, High-Capacity DeVilbiss Paint Shop . . .

With 66% of the cars needing paint, the profit-making possibilities in the paint job market are greater than ever. And here's a modern DeVilbiss Paint Shop that can help you turn these possibilities into profit.

This is the most modern, complete and efficient paint shop you've ever seen. It has a higher capacity - because it does jobs faster and makes quality painting easier. It enables you to handle all types of paint jobs-and gives you a full range of the most efficient equipment for handling every job quickly and economically. It equips you, also, to capitalize on the growing



popularity of underbody coating. This new DeVilbiss Paint Shop sets the pattern for every dealer who wants a larger share of profit from the big paint job market that is ready and waiting. Ask your De-Vilbiss Distributor for the details.

THE DEVILBISS COMPANY TOLEDO 1, OHIO

Canadian Plant: WINDSOR, ONTARIO

### DE VILBISS means Quality in all four ..



SPRAY EQUIPMENT EXHAUST SYSTEMS AIR COMPRESSORS HOSE & CONNECTIONS

FEBRUARY, 1946

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105

#### New K & W Portable Circulator Announced

Kerkling & Co. have introduced a portable circulator and, also, aluminum test heads for the great majority of automobile and truck engines.

With the use of this new equipment, major block repairs may be thoroughly tested and K & W Metallic Seal circulated at the proper temperature and pressure before reassembling and installing the motor.

With minor block cracks, where K & W Metallic Seal only is needed for

repair, the Circulator is ideal since it locates and seals the crack under pressure at the proper temperature.

Features include a GE Immersion Heater, 15 gallon tank and a 200 pound pressure gauge. Also included are 25 feet of heavy duty electric cable, two 12½ foot lengths of heavy duty safety water hose with quick action couplings, and 12½ feet of high-pressure air hose.

The K & W Portable Circulator services motor blocks whether in or out of the chassis.

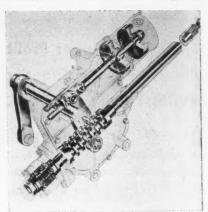
K & W Test Heads are used in con-

junction with the Circulator in the detection and repair of block cracks through the pressure testing system. They are made of aluminum alloy, for lightness, and cover only the areas over the cooling ports and stud holes in the block, leaving the cylinders, valve ports and surrounding areas open for easy inspection.

#### Power Steering Adapted For Civilian Uses

During the war Bendix Products Division, of Bendix Aviation Corp., South Bend, Indiana, developed and manufactured a hydraulic power steering device for use on gigantic tank retrievers, which were rated the largest automotive road vehicles ever built.

This hydraulic power steering device is now finding civilian use on such vehicles as trucks, road graders and buses, where the size and weight of



the vehicle is great enough to warrant power to supplement physical effort for steering.

The Bendix device provides a means of applying hydraulic power to the movement of the front wheels for steering.

The manufacturer also points out that power steering has important safety advantages in that road shock is automatically opposed by hydraulic power, preventing loss of control in the event of striking road obstructions, soft shoulders or tire blow-outs. It is claimed that power steering may find a civilian use to decrease driver fatigue and otherwise as a safety measure on buses, trucks and possibly passenger cars.

#### **Appointed Director**

C. E. Wilson, president of General Motors, announced the appointment of Norman K. Haig, formerly director of the G. M. War Products Training Service, as director of the Government Sales Section of the distribution staff, with headquarters in Detroit.

The Government Sales Section is responsible for domestic sales of General Motors vehicles made direct to the Federal and State Governments.



#### Johnson QUALITY Bearings

• Now that the world is at peace you will soon be able to get all the Johnson Bronze Bearings that you need. They will be made to the same high standard of precision and perfection as always. This will enable you to give your customers new car performance regardless of the mileage now shown. Write for our complete catalogue NOW. Then check up on your immediate needs and place your order early.



hammering home the superiority of RAYON cross section of a Miracle TIRES SAFER TIRES . BETTER TIRES PROPERTY OF THE PARTY OF

HERE's a striking ad, in full color, hitting

American motorists right between the eyes.



**Saturday Evening Post** Fortune Look **American Magazine** Liberty **American Weekly** 

Its message: to tell America about Rayon Cord Tires-how they proved themselves in war and will soon be rolling the roads of peace-how they will run cooler, give longer mileage, with fewer blowouts and road failures. Now's the time to learn all you can about rayon's advantages in tires. Our booklet "Rolling on Rayon" tells the complete story. Send for it today; it's FREE.



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Cleveland, Ohio

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# its important!

It's important to the operators of heavy duty vehicles—light commercial trucks and drivers of passenger cars.

When you buy that new vehicle or have that old one reconditioned for another year or more of service, give more than passing concern to increased stopability.

Remember — in one second — at 40 miles per hour you travel 60 feet — at 50 you move ahead 75 feet.

You travel fast — so stop safely!

Vacdraulic Power Braking added to your hydraulic brakes gives feather touch, instant eye-to-pedal-to-brake action and that extra margin of safety essential to driving in congested traffic or at high speed.

Vacdraulic is easy to install and its power braking is accomplished without action lag, rods or links to get out of adjustment.



VACDRAULIC

O POWER BRAKING

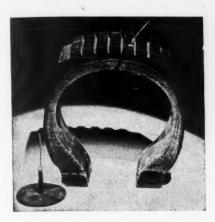
KÉLSEY - HAYES WHEEL CO., DETROIT 32, MICH.
Sold to Automotive Distributors by
EMPIRE ELECTRIC BRAKE CO., Newark 7, N. J.

VACDRAULIC is a Trade Mark of Empire Electric Brake Company

#### Rubber Rivet Seals Small Tire Breaks

A new product of the J. W. Speaker Corp., Milwaukee 12, Wis., is the blow-out-proof rubber rivet, which permanently seals small breaks and nail or spike holes. By "flowing" into every inside crevice and putting a rubber "head" outside the original injury, the blowout-proof rubber rivet prevents water and slush seepage, chief cause of fabric rot and eventual blowouts.

The rubber rivet, made in three sizes, consists of a circular rubber base and a rubber stem with a spiraled steel needle that goes through openings as small as pin holes. Rub-



ber cement, applied to the rubber stem and the casing hole, serves as a lubricant. A quick, hard pull on a pliers thins out the rubber stem to the exact diameter of the hole and enables it to slip through. The rubber stem, released when the wire pulls off, shortens and spreads against the walls of the hole. When the protruding rubber is sipped off an eighth of an inch from the casing tread or sidewall, the effect is that of a rivet, with an apron base on the inside and a head on the outside. It can be installed in two to three minutes.

#### New Type Camber-Caster Gage Available

A new type of camber-caster gage, called the "Super-Easy" has been placed on the market by the Micro-Linor Service Corp., 1627 W. Fort St., Detroit 16, Mich.

A feature of the "Super-Easy" is a built-in floor slope compensator which quickly determines the floor slope. Once the gage is set to the floor slope, the slope is automatically compensated for in all readings.

The "Super-Easy" is an inexpensive device for making camber and caster tests quickly and accurately, doing the job in a fraction of the time formerly required. For example, it will check the floor slope and one wheel for camber in 30 seconds.

#### **Chrome Lock Gasketing**

An improved type of gasketing is announced by the Products Research Co., 634 S. Western Ave., Dept. A-13, Los Angeles 5, Calif., called Chrome Lock.

It is, say the manufacturers, the only gasketing that offers adhesion to metals without cementing the gasket to the flange, assuring a positive seal.

Its ease of handling is due to an adhesive back. This makes it unnecessary to tie, lace or tape the gasket

onto vertical or inverted flanges. The Chrome Lock Gasketing can be finger-pressed onto the surface and, it is claimed, will "stay put." These adhesive back gaskets have a crinolin liner upon which the template may be laid, and either scribed or marked with an ordinary lead pencil.

Chrome Lock Gasketing is supplied in four types, No. 8 and No. 16 without the adhesive back and No. 8A and No. 16A with adhesive back. The gasketing is packed in both rolls and slit rolls.



R AGE



To control its quality, Valvoline is refined in limited quantity from pure Pennsylvania crude oil. Every quart costs us more to make—costs you less to use. Naturally, Valvoline is not on sale everywhere, but you will find it at better dealers coast-to-coast. Sold always with this unconditional guarantee: Valvoline's performance must completely satisfy you—or your money back!



The Original Pennsylvania Motor Oil

Freedom-Valveline Oil Co.—Cincinnati, New York, Washington, Pittsburgh, Detroit Chicago, Atlanta, Seattle, Portland, San Francisco, Los Angeles, Toronto, Vancouver



## Willys-Overland Announces New Sales Organization

Civilian Jeeps, passenger cars and trucks manufactured by Willys-Overland Motors will be merchandised through a nationwide distributor-dealer organization evaluated at approximately \$130,000,000, it was announced by Geo. Harold Bell, director of sales.

Bell said the company's "unique line of low-cost, utility motor vehicles will be moved to the consumer through a network of approximately 3000 dealers and 125 distributors. "This organization," he explained, "has been selected carefully from more than 7000 applications received in the last two years."

The Willys sales executive said distributors and dealers will handle the company's complete motor vehicle line which, in addition to the Universal Jeep, includes a station wagon, two truck models and a passenger car.

#### **Elected ASA President**

Robert H. Erny, owner and operator of one of Philadelphia's largest independent repair shops, was elected president of the Automotive Service Association for the current year. Bob Erny and Earl Mylecraine, the retiring president, have been on the board of directors of the Association since Policies which will its inception. bring the Association more closely in contact with parts and equipment manufacturers, as well as oil refiners, are now being planned. As the members of the Association cover the entire field of automotive maintenance, Erny is drafting a schedule of meetings which will appeal to the entire membership.

## A. K. Tool Co. Announces Purchase of Newton Co.

The A. K. Tool Co., Los Angeles, precision machine and tool makers, announces the purchase of the patents and manufacturing rights of the Newton Co., makers of the Newton Automat which converts hand-operated turret lathes into reliable automatics, the Newton Bar Feed, the Newton Hole Cutter, and the self indexing turret.

On the Newton Automat one operator can handle three Newton Automatic equipped lathes with the result that small jobs can be handled on a profitable basis. Labor costs, too, reach an irreducible minimum.

Experiments are now being made to improve and modernize the various Newton Products at the factory of the A. K. Tool Co., 2029 Blake Avenue, Los Angeles. Production will proceed according to schedule in the near future.



Your customers always have "new-car" headlighting when you replace headlamps with General Electric "All-Glass" Sealed Beam Lamps. Because road and laboratory tests prove that the average G-E Sealed Beam Lamp maintains 99% of its original light output right up to the end of lamp life. They do not grow dim. Lens and reflector made of extra-hard glass like that used in top-quality ovenware, are *fused* together. Absolutely no moisture, dirt or air can enter. The reflector cannot tarnish. Road vibration cannot jar filaments loose. Be sure you have plenty of G-E Sealed Beam Lamps in stock! General Electric Lamp Dept., Nela Park, Cleveland 12, O.

"ALL-GLASS" SEALED BEAM

# G-E LAMPS

GENERAL ELECTRIC

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#### Two Models of New **Bobbi-Car Announced**

Bobbi-Kar is one of the new names in the automotive industry. The Bobbi-Kar body is moulded from highstrength plastic and is pre-tinted with the coloring evenly distributed through its entire thickness. Scratches are removed by light sanding and polishing. Any section of the body may be replaced.

The body itself is completely functional. Rider and passenger leg and seat room is comparable with that obtained in much larger cars. Front and rear fenders are submerged in the lines of the body. Headlights are flush type sealed-beam at standard height and blend into the front elevation of the car. The rear deck tapers and hinges at back so that it may be swung open for access to the engine and for tire change. The rear bumper acts as a counterbalance for ease in lifting. Rubbing strips completely surround the car to protect the finish from high curbings, etc.

The starter button will be located on the dashboard to the left of the

driver.

The interior furnishings for all models will be conventional with the exception of the body trim which will be washable plastic. Upholstery will be leather. Coloring will harmonize with the exterior scheme.

With the Bobbi-Kar engine located under the rear deck, the compartment under what would be the hood of the conventional car has been utilized as a roomy luggage space. The cover for this compartment, or hood, is hinged at the sides, or may be re-moved completely if desired.

Overall length of the two-place Bobbi-Kar and the commercial package car, or Bobbi-Wagon, is 132 inches. The width of the body is 52 inches, and the height with the top in place is 55 inches. Seat width is 43 inches. The seat is adjustable for fore and aft movement.

The sectional plastic top is easily removable and may be conveniently stowed in the luggage compartment when not in use.

The chassis is formed from welded steel tubing. The supporting structure which surrounds the passenger space and reinforces the entire body, is also welded tubular steel.

The power plant is a two-cylinder, horizontally opposed, four-cycle aircooled engine. The sedan model is powered with a four-cylinder water-

cooled engine.

Transmission and differential assemblies have been eliminated by a direct drive from the engine to the fluid drive coupling. No clutch pedal is needed, but a reverse lever is located on the steering column. Tires are 4:50 x 12, mounted upon steel disc wheels.

Memphis, Tenn. Milwaukee, Wis. New York, N. Y. Philadelphie, Pa.

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# you're WAITING, we're RUSHING!

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to Mechanics

VOU may be among the thousands anxiously Y awaiting return of Blackhawk NUGGET Socket Wrenches. In that case, you want some idea of when you can have them — so you won't go too heavy in building up your investment in traditional wrenches.

NUGGETS, you know, have a double-duty drive replac-NUGGETS, you know, have a double-duty drive replac-NUGGETS, you know, have a double-duty drive replac-ing BOTH the 3/8" and 1/2" series. But, a SUPER-STEL ing BOTH the 3/8" and 1/2" series. But, a SUPER-STEL is needed to give NUGGETS the same STRENGTH of the practical COMPACTINGS of the practical COMPACTINGS. is needed to give NUGGETS the same STRENGTH of a 1/2" drive and the Practical COMPACTNESS of the a 1/2" And that steel is HEXITE!

HEXITE could not be used in wrenches during the war because it was restricted by the government. HEXITE will soon be available for NUGGETS. Know. ing how anxious you may be to get a truly-speedy wrench set and get away from working with duplicate we're RUSHING to get double-duty NUGGETS to you! Everything depends on HEXITE, but we're aiming to have NUGGETS in your jobber's stocks come spring. P.S. TO PRESENT NUGGET OWNERS: If you have lost time. You'll be glad you waited!

P.S. TO PRESENT NUGGET OWNERS: If you have lost any of your prewar NUGGET Wrenches, see your Blackhauk allowhom to have have been applied to the sold and the sol any of your prewar NUGGET Wrenches, see your Blackbawk

Tobber. He will arrange delivery of replacements.

Blackbawk

In other to protect the innectment of present owners. Jobber. He will arrange delivery of replacements. Blackbawk
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NIICCETS cannot be made and cold on a mace broduction wishes to protect the investment of present owners, even if nucleon a mass production and sold on a mass production NUGGETS cannot be made and sold on a mass production available.

Nucleon buyers until Hexite steel is again available. A Product of BLACKHAWK MFG. COMPANY



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FEBRUARY, 1946

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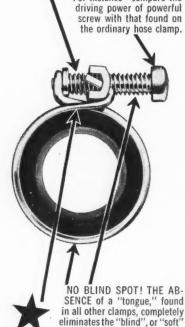
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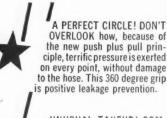
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# 5 STAR FEATURES of the NEW Central "360" HOSE CLAMP!

PUSH+PULL POWER! LOOK
how the new, perfect mechanical principle of push
plus pull clinches this
clamp's powerful wire
strands into a vise-like
grip on the hose.

RUGGED STRENGTH! SEE
how every part of the "360" is
"oversize" for extrastrength.
For instance—compare the





UNUSUAL TAKEUP! COM-PARE the exceptional takeup of the "360" with that of the ordinary clamp. This more than sufficient takeup guarantees elimination of leakage trouble, even on today's irregular synthetic hose.

spot—the primary cause of leakage in other clamps.

Write today for your FREE sample of Central's "360" Wire Hose Clamp and Bulletin Number 2346.

CENTRAL EQUIPMENT CO. 900 S. Wabash Ave., Chicago 6, Ill.

#### Redesigned Brake Shoe Hold-Down Pin

The Gibson Products Co., 101 East 242nd St., Cleveland, Ohio, who make a complete line of Brake Shoe Hold-Down Assemblies for all popular cars, has redesigned their brake shoe hold-down pin. It now has a double-axe head which has been found more efficient in retaining the spring than the old design. Complete Brake Shoe Hold-Down Assemblies, including spring, cover, locks, and the new-design pin, now are all brightly cadmium plated for longer wear.

#### Puritan Flushing Fluid

The Puritan Co., Rochester, N. Y., announces a new product—Puritan Flushing Fluid, in addition to its line of hydraulic brake fluids, shock and knee action oil and Gaska Seal. This new product is used for cleaning out and flushing hydraulic brake systems. It is a quick-acting, efficient compound, non-corrosive and with no harmful action on either metal or rubber parts of the hydraulic brake line. Distribution is through NAPA and regular Puritan Jobbers.

#### New Parts Washer Offered by Park Chemical

A new parts washer, in which air pressure is effectively used to agitate the cleaning fluid, has recently been announced by Park Chemical Co., 8074 Military Ave., Detroit 4, Mich.

Priced at \$19.95, this new unit is particularly recommended for shop use. It features a pipe-line system of outlets within the tank itself from



which compressed air is released to set up a strong agitation of the cleaning fluid.

Furnished with each Parko Parts Washer is an air control valve, air agitator and a wire dipping basket for submerging small parts. Larger parts may, of course, be placed directly in the tank itself. Tank dimensions are 14% in. by 14% in. by 8 in. deep. Operating capacity is five gallons of cleaning fluid.

## HALL()WELL

Brings Your Tools

WHERE
YOU WANT 'EM

WHEN
YOU WANT 'EM!



Follows you around like Mary's little lamb...this "Hallowell" Tool Stand with easy-rolling swivel casters! It stands up under plenty of hard wear too, for it combines rugged welded steel construction with the fine quality of "Hallowell" workmanship. A variety of styles and models are yours to choose from. The model shown can be equipped with drawer tier as shown, with a single drawer, or without drawers.

Welded steel construction makes this "Hallowell" Steel Stool wobble-proof. Adjustable spring posture back; heights from 14" to 36" inclusive.



Fig. 1248

Send for the Catalog of "Hallowell" Shop Equipment of Steel.



OVER 40 YEARS IN BUSINESS

## STANDARD PRESSED STEEL CO.

JENKINTOWN, PA. BOX 561

Boston, Chicago, Detroit Indianapolis, St. Louis, San Francisco

# Reline with CoMax BRAKE LINING



# the line is complete and it's available NOW!

You gain by ordering your *entire* requirements of brake lining from a single source—do it by standardizing on CoMaX. The CoMaX line provides *complete coverage* for all trucks, tractors, trailers, passenger cars, and buses.

Regardless of what your lining requirements may be—whether drilled sets, rolls, blocks, or slabs—you'll find just what you should have in the Wagner CoMaX line.

CoMaX has these important characteristics:

- Uniform in frictional qualities throughout the entire service thickness. As the lining wears, the same type of brake lining surface is always exposed to the drums.
- Does not compress or swell. No changes in lining thickness take place, other than that caused by normal wear. Brakes remain adjusted over long operating periods.
- 3. Easy on drums. Contains no abrasive material.
- Wears slowly. Its ingredients are carefully selected for extra-life properties.
- 5. Doesn't deteriorate with age. Whether in use, or on the shelf, CoMaX resists the elements.
- 6. Is quiet-grips silently, with no "howling" or "squealing".
- Permits smooth, controllable deceleration. No jerking stops. CoMaX responds to the degree of brake application.

Ask your Wagner jobber or write us for details on this great line. Catalog BU-128 will be supplied FREE on request. Also ask for Wagner Lockheed Hydraulic Brake Parts and Fluid Catalog HU-122...Wagner Electric Corporation, 6498 Plymouth Ave., St. Louis 14, Mo., U. S. A.

B46-2



# Wagner

LOCKHEED HYDRAULIC BRAKE PARTS and FLUID... NoRol....CoMax Brake LINING... AIR BRAKES...TACHOGRAPHS...
ELECTRIC MOTORS...TRANSFORMERS...INDUSTRIAL BRAKES



AGE

## "NOCO" BATTERY CORROSION ELIMINATOR AN IMPORTANT MAINTENANCE SERVICE



"NOCO" TERMINAL PROTECTOR WASHERS ARE MADE OF GENUINE FELT TREATED WITH SPECIAL COMPOUND TO WITHSTAND CORROSION AT THE TERMINAL POSTS. PACKED IN CANS.

Quan.	Part No.	List	Dealers' Price
50	203	3.50	2.50
100	204	6.50	4.50

#### "NOCO" BATTERY CORROSION ELIMINATOR COMPOUND

PREVENTS CORROSION AND SAVES BATTERY CABLES, CAR-RIERS, WIRING, HOLD-DOWNS, ROAD DELAYS, ETC.



Contents Part No. List Dealers
1 LB. 205 2.50 1.75
1/2 GAL. 206 6.00 4.00
1 GAL. 207 9.00 6.00

\* STOP

RROSION

locc



PROTECTORS AND COMPOUND
ARE PACKED IN CARTONS AND EACH
JAR CONTAINS TWO WASHERS AND
COMPOUND FOR ONE BATTERY.

Contents Part No. List Dealers 12 JARS 202 6.00 3.60

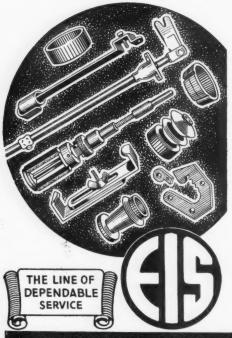
DISTRIBUTORS' AND JOBBERS' PRICES

MANUFACTURED BY

THE NOCO COMPANY
2074 EAST 65TH ST. CLEVELY

CLEVELAND 3, OHIO

# Through the years our watchword has been "DEPENDABILITY"



SINCE Eis Brake Parts were put on the market, sixteen years ago, we have never deviated from the highest attainable standards of quality. This means:

Utmost care in the selection of materials - - -Technical skill and precision methods in manufacture - - - -

A rigid system of inspecting and testing.

You can always be sure of a long-lasting job without comebacks when you replace with Eis Brake Parts and Cables—famous as "The Line of Dependable Service."

From your jobber. Write us for literature on complete line.

EIS MANUFACTURING CO.
Middletown, Conn.

BRAKE PARTS - BRAKE FLUID - BRAKE TOOLS -

#### Koppers Co. Offers New Technical Manual

The new "Technical Manual" prepared by Koppers Co., Inc., American Hammered Piston Ring Division, Baltimore, has just come off the press. This manual is designed to help repairmen service automobile motors efficiently and profitably and help them eliminate the causes of costly comebacks.

The new manual incorporates the proper procedures and best practices used in the overhaul of modern high-speed automotive engines, and covers in detail the many causes of excessive oil consumption as well as the peculiarities and "bugs" to be looked for in individual engines. And it tells just how to lick these troubles.

The new "Technical Manual" is available at a cost of fifteen cents to repairmen through American Hammered jobbers.

#### Raybestos Booklet Contains War Record

"WHAT GOOD IS A WAR REC-ORD NOW?" The answer to the above question is given in a twentyfour page booklet recently published by The Raybestos Division of Raybestos-Manhattan, Inc., Bridgeport, Connecticut.

An 11 x 14 four-color presentation, the book tells of the Raybestos war manufacturing record and of the projection and the use of research, engineering production skill towards developing new products and processes.

The booklet explains that Raybestos was called upon to make its war record in its own special field. "From the desire to achieve and the white heat of necessity, things were learned, new processes and products developed, new techniques perfected that are and will be of vital interest to Raybestos employees, suppliers and customers," concludes the book. "The will and the means to translate these skills and processes into better products of peace... in a better world for us all... which is just exactly what Raybestos intends to do."

Copies are obtainable on request from the Merchandising Department, The Raybestos Division, Post Office Box 1021, Bridgeport, Connecticut.

#### De Soto Eastern Manager

Appointment of Arthur B. Nielsen as eastern sales manager is announced by J. B. Wagstaff, general sales manager of the De Soto Division of Chrysler Corp.

In his new capacity, Nielsen will supervise the De Soto regional offices located in Boston, New York, Philadelphia, Charlotte, Atlanta, Memphis, Cincinnati, Pittsburgh and Syracuse.



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AGE

Fairmount Tool & Forging Company

10611 Quincy Ave. Cleveland, Ohio

# More are Coming for Your Customers

As you know, the average tire valve in service today is more than six years old. Many need reconditioning with Standard replacement parts.

Because of tremendous pent up demand however, Schrader Products sometimes are still hard to get. We're doing the best we can to fill orders.

Our advertising in national consumer and farm publications, is urging motorists to buy Schrader Caps by the set to "make tires last longer", but is also asking them to be patient if they can't get them right away.



Check your stock of Schrader Products and order your needs now. We'll try to make deliveries as soon as possible. In the meantime—thanks for your cooperation.

#### A. SCHRADER'S SON

Division of Scovill Manufacturing Company, Incorporated

BROOKLYN 17, NEW YORK

## C. W. Ginter Appointed Vice-President of Aro

C. W. Ginter, who has been associated with the Aro Equipment Corp., Bryan, Ohio, since its organization sixteen years ago, has been appointed vice president of the corporation. His duties will be to further the development of all pneumatic tools and lubricating equipment, handling of all patents, approval of all purchases of new machinery, and the construction and changes of all buildings.

#### 3045 Dealers On Chrysler Roster

At the end of 1945, Chrysler Div. of Chrysler Corp. had 3045 dealers on its roster, and about 50 more had been accepted but not yet formally franchised, according to Stewart W. Monroe, general sales manager. This compares with 3404 dealers in December, 1941, and with 2481 in December of 1943, the low point during the war.

## Flook Elected Director Of Graham-Paige

Election of William M. Flook, of New York, former chairman and chief executive of the New York Shipbuilding Co., to the Board of Graham-Paige Motors Corp., was announced recently following a meeting of the directors. The new member of the Board is a former director of the Third Avenue Transit Co., of New York.

## Moog Industries Announce Appointments

Moog Industries, Inc., St. Louis, Mo., manufacturers of Moog X-Plus piston rings and other Moog products, announce the following appointments:

R. W. Browne, formerly with Walker Mfg. Co. and Chevrolet Motor Co. as district manager for Northern Illinois, Southern Wisconsin, Iowa and Nebraska.

Rudy Gerdelman, formerly with Toledo Steel Products as district manager for Missouri and Southern Illi-

Clarence J. Monken as special piston ring representative. Monken has been with the Moog organization for a number of years.

John Phillips, formerly in the automotive business in the south as spring suspension representative in Arkansas, Tennessee, and Oklahoma.

Jack Burke, also in the automotive business in the south as representative for Moog in Oklahoma, Kansas and Arkansas.

J. R. Baber, of Lynchburg, Va., as new district manager for Virginia, West Virginia and Kentucky. He is well known in this territory, having been in the parts field here for some time.



Yes, we're back on the job ... once again filling the needs of the people who insist on sure, dependable USALITE Flashlights and Batteries.

Very much in evidence in the

AD TURNS LIGHT

SWIVEL-

HEAD FLASH-

LIGHT.

AN EX-

USALITE

PATENT.

NO. SW-22

USALITE line is the experience of many years in quality flashlight and battery manufacture...plus the added knowledge gained in supplying huge quantities of USALITE Flashlights and Batteries to our Armed Forces.

There's profit, there's customer satisfaction in selling USALITE Flashlights and Batteries. Order from your jobber today.



### Flashlights & Batteries

"A" & "B" Batteries for Portable Radios

UNITED STATES ELECTRIC MFG. CORP. Factory and Exec. Off.: New York 11, N.Y. Branch Off.: Chicago 7, III.

season in with PRATT Replacement muffler sales—profitable the year round reach their peak in the spring and early summer. This year get your share, and more, of this profitable business. You can if you plan now to "cash in" with the PRATT line of Spiral-built mufflers. Spiral Construction and "Can't-clog" Scoop Action, PLUS other exclusive PRATT features found in no other replacement muffler, mean faster turnover and more profits for you because of ready consumer acceptance.

PRATT INDUSTRIES INC., FRANKFORT, N.Y.
In Canada: PRATT CHUCK COMPANY, Ltd., Toronto, Ont.

Pratt Replacement Mufflers are sold only through jobbers.

Join the Profit Parade with Pratt Spiral Mufflers and watch your Muffler Sales Pyramid.

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actory and hicago 7, III. Pratt Spiral Mufflers are approved by Underwriters' Laboratories, Inc.

PRATTSpiral MUFFLERS
DIEFERENT ... BETTER ... FASTER SELLING



Reg. U. S. Pat. Off.

HAT HAS EVERYTHI

# PRODUC



#### CLEANER

Thoroughly removes rust, grease, and scale . . . harmless to hose, gaskets, and all metals.



QUICK FLUSH Can be used while car is in service ... removes rust, grease, and sediment will not injure hose, packing, gaskets, metals.



#### STOP LEAK

Quickly stops leaks . . . flows freely through cooling system, can't clog tubes . . . harmless to hose, gaskets, and all metals.



#### ANTI-RUST

Prevents rust and corrosion . protects all metals, including aluminum ... will not injure hose or gaskets.



# NOR WAY

SERVICE MANUAL An up-to-date book containing information to help taining information to neipy you with both sales and service work.



WINDOW BANNER 10 In. x 20 in. banner, ready to put up in your station or garage window.



# CONSUMER CIRCULAR

Attractive leaslet for distribution Attractive leanet for distribution to your customers and prospects.



NATIONAL ADVERTISING A complete advertising schedule appears regularly in schedule appears regularly in widely read magazines to help you sell Nor'way products.

Specialties Division

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NO MORE TROUBLE with
SYNTHETIC TUBE REPAIRS



Now Ready

NEW INLAND Way to

Bigger Tube Vulcanizing Profits

Get set for big Spring and Summer tube repair business with this New Inland Tube Vulcanizing Unit No. 5. Everything needed to start you off in profitable tube vulcanizing work at once. You get Inland's famous thermostatically controlled Vulcanizing Press PLUS a complete stock of Gum, Vulcanizing Cement, Accessories and Tools. Easy to use... requires very little space... can be put to work on tires too, simply by adding tire molds, sandbags and other accessories. Your jobber has No. 5 Units in stock for immediate delivery.

For both natural and synthetic rubber tubes

Easy to use...no experience necessar

Repairs injuries up to 6" long in one curing Handles valve stem repairs of all sizes

Get details in New Free Folder



INLAND RUBBER CORPORATION

Subsidiary of Minnesota Mining & Manufacturing Company
Branches in thirteen principal cities



INLAND RUBBER CORPORATION
33 So. Clark St., Dept. MA-2, Chicago 3, Ill.

Please send me free folder on Inland No. 5 Tube Vulcanizing Unit.

Address

Name.....

Town

# Can you pass this quiz?

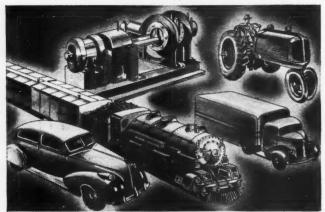
answers. Check yours. The correct answer will be found in the lower right hand box.



The Timken Roller Bearing Company is the largest manufacturer of tapered roller bearings in the world. How many plants are devoted to the manufacture of this product?

Eight

Fourteen



Since 1898, when The Timken Roller Bearing Company started in business, how many Timken Bearings would you estimate have been used in America's vehicles and industrial equipment?

5,000,000

453,000,000

766,000,000



order to maintain the quality and precision of Timken Bearings, what percentage of employees would you say devote their full time to inspection?

10% 30% 50%

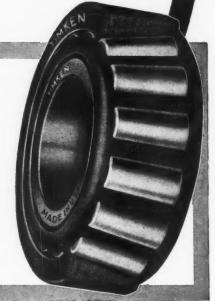
## ANSWERS

- There are eight Timken Bearings plants. One Wooster, Columbus and three in Zanesville. The correct answer is over 30%. Precision testing and inspection is a routine procedure in the melting of Timken Bearings beginning with melting of the steel and continuing with the melting of the steel and continuing with the copy operation to final shipment.
- More than 766,000,000. Automobile, truck and industrial equipment manufacturers give Timken
  independent roller bearing manufacturers
  bined, dent roller bearing manufacturers
  com-

#### AND OF COURSE YOU WOULDN'T MISS ON THESE!

- \* It's sound service practice to play safe.
- \* To follow the judgment of top automotive engineers.
- \* To look for the trade-mark "TIMKEN" plainly stamped upon every Timken Bearing.
- \* To always replace a Timken Bearing with a Timken.

THE TIMKEN ROLLER BEARING COMPANY CANTON 6, OHIO





One of the most reliable parts of an engine is the AC Fuel Pump, heart of the fuel system. That's because it's first quality in design, material, and manufacture, - built to meet the engine maker's own requirements.

Serve your customers best, and protect your own reputation, by replacing worn pumps with new or factory-rebuilt AC's, and making repairs with authentic AC Parts Kits or Diaphragm Kits.

#### QUALITY FEATURES

- \* Careful control of pressure and flow assuring correct fuel supply.
- \* Accurate hardening, precision machining of parts essential to long life.
- \* Accurate control of spring tensions and temper.
- \* High, and controlled, pin hardness.
- ★ 4-layer, patented-impregnation diaphragms of special airplane cloth.
- \* Carefully finished rocker arm pads, located to center on cam.
- \* Split-hair rocker arm clearance and control of pad hardness.
- \* Uniform pull rod hardness at pin holes.

SEND FOR AN AC PUMP SHOP MANUAL

SEND FOR AN AC PUMP SHOP MANUAL seld Service Department, AC Spark Plug Division, G. M. Corp. 10 Mott Foundation Building, Flint 3, Michigan Gentlemen: Please send at once, the charge, the AC Shop anuals checked:

How to Service Spark Plugs | HOW TO SERVICE FUEL PUMPS How to Service Spark Plugs | How to Service Affectioners | How to Service Oil Filters | How to Service Oil Filters | How to Service Oil Filters | How to Service Spacedometers |

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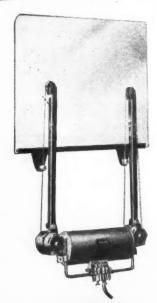
STREET ADDRESS.

# This BOOKLET TELL



the advantages of costfree Harnessed Air Power for touch-button control of car windows

# SEND FOR IT NOW



What Lift-O-Matic is . . . how it works . . . why it is the ideal system for controlling car window movement . . . is described and illustrated in this new TRICO booklet.

Cutaway and phantom views show the simplicity of installation, whether for the driver's door only or for all windows.

Shown also is the Vent-O-Matic which gives the driver touchbutton control of the no-draft ventilator vane on the opposite

A copy of this new booklet will be mailed upon request. side of the car.

Trico has produced a sound motion picture—"The Touch of Tomorrow"—available in 16 mm or 35 mm. High in entertainment value, it is suitable for projection at luncheon clubs, dealer meetings, motion picture theaters. It will amuse and interest meetings, motion picture of this firm motorists everywhere. Write for a free booking of this film.



Lift-O-Matic

TOUCH BUTTON CONTROL of Motor Car Windows through HARNESSED AIR POWER TRICO PRODUCTS CORPORATION, BUFFALO 3, NEW YORK



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#### FOR FREQUENT-STOP DELIVERY SERVICE

... IT'S CONVENIENT... ECONOMICAL... ATTRACTIVE

• Marmon-Herrington's unique new DELIVR-ALL for the first time brings to the commercial world a vehicle embodying all the long-awaited features essential to fast, efficient, economical house-to-house and store-to-store delivery service.

Here is a front-drive vehicle with wide, full-length, close-to-the-ground floor (for easy entrance and exit)—large capacity—low center of gravity of load—stand-up or sit-down operation—short wheelbase maneuverability—independent and detachable front-end power and drive unit (for preventive maintenance)—and many other conven-

ience and performance features.

Into DELIVR-ALL has gone all of the design and engineering genius of Marmon-Herrington, world-renowned builders of All-Wheel-Drive trucks. DELIVR-ALL is the result of years of research and exhaustive in-service tests—a truly tried and proved vehicle—ready to speed deliveries—reduce costs—increase profits . . . for you!

Orders are now being accepted for DELIVR-ALLS. Write, wire, phone or visit us for complete information and delivery dates on this most modern of delivery vehicles.

MARMON-HERRINGTON COMPANY, INC. . INDIANAPOLIS 7, INDIANA

MARMON-HERRINGTON







# EVERY RELINE JOB!

### BARRETT BRAKE DOKTER

Insure perfect brakes—Save labor and material—Eliminate those costly free adjustments.



The Brake Dokter centralizes shoes, grinds to give 100% drum contact, and adjusts for proper clearance any size brake assembly from 7 to 24 inches.

BARRETT EQUIPMENT CO

TWENTY-FIRST AND CASS

ST. LOUIS 6, MO.

FEBRUARY, 1946

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FELT PRODUCTS MFG. CO., 1521 CARROLL AVE., CHICAGO 7, ILL.

with fel-pro complete gasket sets, packing, grease retainers

THE FINEST BATTERY CHARGER THE TRADE HAS EVER KNOWN!

MODEL HR-53-2

1. 100 Ampere - fast or slow charge.

2. Heavy discharge unit for individual cell test and desulphation.

> 3. Self-healing, magnesium-copper sul-phide, dry-plate rectifier.

4. Multi-circuit tap switch — provides fine current adjustments.

5. Fully automatic time switch.

6. Specially designed, extra heavy duty steel wheels with brake equipped swivel caster.

BY THE ORIGINATOR OF RAPID BATTERY CHARGING

see your jobber

today – get im-mediate delivery.

6417 10,

HARTMAN

HART MAN.

FEBRUARY, 1946

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# WHAT BANK DEALS COST DEALERS IN PROFITS

15 YEARS AGO, a mere handful of banks financed cars. Even 5 years ago, the number totaled only a few thousand. Today there are 10,000 banks making direct deals. And 75,000 insurance men are cooperating with them. In 1941, these direct deals "short-circuited" the average metropolitan area dealer out of \$5,088 in profit. Here are the facts determined in a recent survey, based on U. S. Government compiled statistics.

N THE NEXT 12 months, direct deals can and probably will cost you \$7,500.00 or more in potential profits—unless—you tie up with a finance company that meets direct competition on every point—low rates—complete insurance protection—liberal policies—special services.

GFC has such a plan. It not only meets bank competition on every point, but beats it on many, offers some that others do not.

It will help you control your finance business—which means continued reserves, continued wholesale, continued liberal used car financing, continued financing for marginal credit risks.

GET THE FACTS—Write, wire or call GFC headquarters in Chicago. Ask to have our nearest office give you details on this new plan—and show you how you can retain \$7,500.00 or more of Profits you may otherwise lose.

#### **ESTIMATED ANNUAL LOSS OF DEALER RESERVES**

in a few major cities, on bank-financed deals\*

ALBANY	\$ 111,936.00	MEMPHIS	\$ 162,816.00
ATLANTA	178,080.00	MAM	91,584.00
BALTIMORE	254,400.00	MILWAUKEE	295,104.00
BOSTON	290,016.00	MINNEAPOLIS )	417.216.00
BUFFALO	193,344.00	ST. PAUL \$ 417,216.0	
CHICAGO	1,348,320.00	NEW ORLEANS	183,168.00
CLEVELAND	595,296.00	NEW YORK	1,740,096.00
DALLAS	239,136.00	PHILADELPHIA	605,472.00
DES MOINES	193,344.00	PITTSBURGH	284,928.00
DETROIT	697,056.00	SAN FRANCISCO	483,360.00
HOUSTON	228,960.00	ST. LOUIS	534,240.00
INDIANAPOLIS	239,136.00	SEATTLE	305,280.00
JACKSONVILLE	132,288.00	*Computed by multiplying major-city- dealer average loss of reserve by number of dealers in each city.	
KANSAS CITY	417,216.00		



Send for interesting booklet which tells how much bank competition cost you in lost reserves.

## **General Finance Corporation**

BRANCH OFFICES IN



PRINCIPAL CITIES

184 West Lake Street · Chicago 1

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What happens when this Red Elastic Collar becomes part of a nut? The nut becomes an ESNA Elastic Stop Nut! And it provides permanent protection for any detachable or adjustable assembly.

How?

First, an Elastic Stop Nut locks in position anywhere on a bolt or stud. Every bolt can be precisely prestressed to carry its full load. Positioning devices can be adjusted with precision. Vibration cannot disturb these settings — because the Red Elastic Collar eliminates all play between bolt and nut threads with its full contact, permanent grip.

Second, it prevents thread corrosion. Moisture is sealed out. Adjustment or removal is easy — any time.

Third, it prevents thread damage. Full thread con-

tact in the Red Elastic Collar keeps the metal threads firmly seated. Axial play caused by vibration or stress reversal is dampened.

Fourth, it prevents seepage of liquids past bolt threads. Permits nut to be used as a sealing device.

Fifth, it prevents maintenance waste. The Red Elastic Collar, which does not injure the bolt or its plating, permits repeated usage.

Here's a challenge: Send us complete details of your toughest bolted trouble spot. We'll supply test nuts — FREE, in experimental quantities. Or, if you want further informa-

tion write for literature. Elastic Stop Nut Corporation of America, Union, New Jersey. Representatives and Agents in principal cities.



#### **ELASTIC STOP NUTS**



AGE

WRENCHINE



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INSTRUMENT MOUNTING



SPLINE



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PRODUCTS OF: ELASTIC STOP NUT CORPORATION OF AMERICA

IT'S HERE!

for

BATTERY CHARGERS

STANDS THE GAFF

Se-RON

Selenium Rectifier



RATING:

Fan cooled, 100 Amp. charge for automotive batteries.

SIZE:

Overall, 41/2"x51/2"x6"

PROVEN TO BE RELIABLE—
EFFICIENT—INTERCHANGEABLE—
and now AT A NEW SPECIAL PRICE!

The Swing is to Selenium

FULL DATA
ON REQUEST

SIGNAL MANUFACTURING CORP S4th Street, New York 19, N. Y.

# Wonderful Weather INSIDE... all year nound

In June as in January, WIT-EEZ AUTO FANS are in demand by drivers everywhere. Cooling in the summer, circulating warmth in the winter, WIT-EEZ makes motoring more comfortable. Makes driving safer, too, by clearing windshields and windows of frost and fog in all weather.

Every car owner is a potential buyer - and WIT-EEZ national advertising is on the job now, helping you to many more sales. Don't miss the profits awaiting you. Write for prices and details!

... Every Season's a SELLING Season for Wit-eez Dealers



battery drain, non-radio interference. Fits all cars, easy to install.

WITTIE MFG. & SALES CO. • General Offices and Plant, 1414 S. Wabash Ave. • Chicago 5, III.

BRANCH OFFICES AND REPRESENTATIVES IN NEW YORK, KANSAS CITY, LOS ANGELES AND DETROIT

FEBRUARY, 1946

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# The PROBLEM

## CARBURETER

TRADE MARK REG. U. S. PAT. OFF.

CARTER CARBURETOR CORPORATION, ST. LOUIS, MO., U. S. A.

BULLETIN NO. 227-GENERAL TATE February 1, 1945

TO ALL ACCOUNTS

Occasionally new carburetors are returned to Central Distrib-SUBJECT: DIRT AND WATER utors for warranty consideration. Upon examination these are found to be partially inoperative due to excess foreign matter. Some are full of dirt; some have an internal coating of gum, precipitated in the carburetor itself by inter-

A gummed up carburetor is no more the manufacturer's responsibility than is a muddy pair of shoes. The remedy mittent use.

As for carburetors, new or old, in trouble because of foreign is much the same in each case.

matter, responsibility is not ours either. Excellent assurance against these costly "comebacks" is the installation of a Carter Ceramic Fuel Filter With every new

or repaired carburetor. The situation has become so critical or repaired carouretor. The Situation has become so crititation that a filter should be shipped with every new carburetor

We expect our distributors to be most liberal in making warranty adjustment on material, but this is notice to all concerned that CARTER WILL ACCEPT NO RESPONSIBILITY FOR DIFF. IN A CARRIED INVEST A CARRIED FUEL FILMED TO DETAIL and charged for. DIRT IN A CARBURETOR UNLESS A CARTER FUEL FILTER IS BEING

CARTER CARBURETOR CORPORATION USED ON THE VEHICLE.

P. G. Sedley, Manager Parts and Service Division



The scientifically designed filtering element of a specially prepared porcelain assures a steady flow of gasoline free from dirt, lint, and harmful

F



Replace cracked and discolored glass with L.O.F SAFETY PLATE GLASS





A lot of potential glass replacement business will come into

your shop this year—as thousands of car owners try to make "the old bus" last a little longer.

Turn that potential business into actual business...by checking the glass of every car in your shop. Motorists often know their replacement requirements but have to be reminded.

#### **USE QUALITY GLASS TO BACK UP** YOUR PROMISE OF A QUALITY JOB

With L.O.F Hi-Test Safety Plate Glass you can offer maximum clarity and freedom from distortions—for both panes are ground and polished like a gem. Then, for greater safety, the panes are laminated with a tough plastic.

Ask your L.O.F Distributor to keep you stocked with the most-used part numbers. If you send your work out, choose a shop that uses genuine L.O.F Safety Plate Glass. Libbey Owens Ford Glass Company, 7326 Nicholas Building, Toledo 3, Ohio.

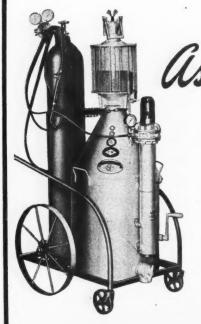




LIBBEY · OWENS · FORD

a Great Name in GLASS

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As simple as A B C

ACETYLENE costs are 50% to 75% lower, when you own a SIGHT FEED Acetylene Generator. You put the "bottler's" profit in YOUR pocket.

**B**ETTER welds are possible, due to the purer, hotter acetylene which is generated by your SIGHT FEED. A high factor of safety, yet simplicity of operation, is also attained by these generators.

CARBIDE is entirely visible in the SIGHT FEED hopper. You KNOW, before you start a job, how much acetylene you may expect from your present charge.



#### THE SIGHT FEED GENERATOR CO.

SALES: RICHMOND, INDIANA . FACTORY: W. ALEXANDRIA, OHIO

This announcement appears as a matter of record only and is under no circumstances to be construed as an offering of these securities for sale, or as an offer to buy, or as a solicitation of an offer to buy, any of such securities. The offering is made only by the Prospectus.

1,800,000 Shares

#### Kaiser-Frazer Corporation

Common Stock
Par Value \$1 Per Share

Price \$20.25 per Share

Copies of the Prospectus may be obtained from only such of the undersigned as may legally offer these Securities in compliance with the securities laws of the respective States.

Otis & Co. First California Company
Allen & Company

January 23, 1946.

#### Vulcan Bearing Purchases Storm Manufacturing Co.

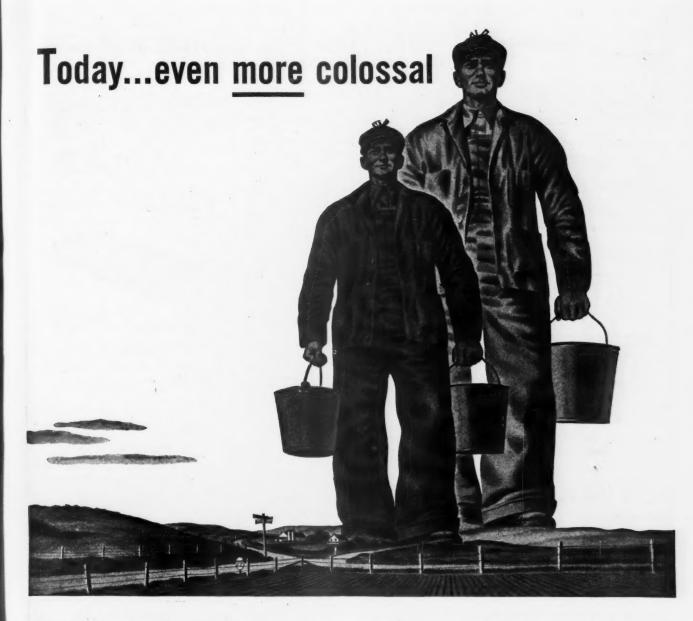
Announcement of the purchase of the Storm Manufacturing Co., Minneapolis, Minn., by the Vulcan Bearing Machine Co. of Dallas, Texas, has been made by A. L. Barnett, co-owner and general manager of the Dallas firm.

The two companies have a combined annual volume of business in excess of \$1,000,000, and will be operated separately in their present locations.

Established policies and sales practices of the Storm Co. will be continued, it was stated. J. H. Turner, president and general manager, and Harry Nelson, secretary-treasurer, will continue in their present capacities. No other changes in personnel are considered. Co-owners of the two firms are A. L. Barnett, M. J. Michels, sales manager, and C. L. Barnett, production manager of the Vulcan Co.

The Storm Co. has been widely known to the trade for the past 25 years for its complete line of automotive maintenance equipment. Principal products have been cylinder boring bars, brake drum lathes, piston grinding machines, cylinder boring plates and connecting rod alignment equipment.

Barnett said that the Storm Co. sale involves all assets of the company.



COLOSSUS of the Cross Roads, the American farmer, looms even larger today than last year!

With his production setting still another new record in 1945, the farmer stepped up his income to an unprecedented 28 billions, and salted away nearly 5 billions of it in savings. His accumulated cash and War Bonds now come to 17 billions.

There he stands... feeder of our people, and food producer for millions of hapless people overseas. There he stands... war hero, international soldier of the soil, giant of energy and production.

There he stands . . . colossal customer. A man with a list of needs that staggers the imagination, and with plenty of money to satisfy them.

Even in normal times the farmer and his rural

neighbors buy 40% of all America's consumer goods. Sell him through the magazine that has won his confidence and respect.

#### Facts of Special Interest to the Automotive Industry:

"Farmers are desperate to drive home some new trucks and cars—maybe a billion dollars worth!"—Clinton Anderson.

The rural market accounts for 40% of all cars and trucks in the U. S.

Automotive dealers, by almost 3 to 1, vote Country Gentleman the most effective rural magazine in selling their customers.

Farmers' incomes have doubled in the last five years! For the last ten years automotive manufacturers have invested more advertising dollars per issue in Country Gentleman than in any other magazine but the "Post".



NATIONAL SPOKESMAN FOR AGRICULTURE
A CURTIS PUBLICATION

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Co.

AGE



Write for catalog sheets on all Logan Lather No. 210 Bench Model, Swing Over Bed, 101/2"



# Ask about the FOX RAPID BATTERY CHARGER

FOX PRODUCTS COMPANY
PHILADELPHIA 41, PA.

You Can Rely On

## FRENCHTOWN INSULATORS

Used by more spark plug manufacturers than any other.

#### FRENCHTOWN PORCELAIN CO.

81 Muirhead Ave., Trenton, N. J. (Factory: Frenchtown, N. J.)



# ENGINE CRACKS

FASTI EASY TO USEI No special equipment or training needed with Wonder Seal. Write for Folder.

Folder.
OFTEN IMITATED ...
NEVER EQUALLED!
WONDERWELD PRODUCTS
MILLER MFG. CO.
CAMDEN, N. J.



General Offices: 331 Madison Avenue, New York 17, N.Y.
Plant and Laboratories: Port Reading, New Jersey

Petroleum Solvents Corp. of Canada, Ltd. Dominion Square Bldg., Montreal

Makers of

LOOSITE: to clean the engine SILOO: to keep it clean

#### New Rear Engine Car Expected to Enter Field

Another new automobile manufacturing Company is expected to enter the field soon with a rear-engine drive car, according to reports. It is understood the company, which will be capitalized for \$40 million, will take over the huge Dodge-Chicago plant in Chicago. The car the company 's planning to build is said to be the Tucker Torpedo, designed by Preston Tucker, Ypsilanti, Mich., engineer. Reports describing the Torpedo say its chief feature is a hydraulic torque converter which transmits power directly from the engine, to the rear wheels, eliminating clutch, transmission, drive-shaft and differential, and effecting a saving in weight of be-tween 600 and 800 pounds.

The engine is reported to be a two-cylinder design which will turn up 150 hp. and give gasoline economy of from 35 to 60 mpg. depending on fuel octane. It is said also to have a fuel injection system, and a top speed of 2400 rpm. The engine block is described as a one-piece aluminum casting. Cylinder walls are said to have the same coefficient of expansion as the aluminum pistons to reduce ring and wall wear. Weight of the engine is about 250 pounds. A unique feature claimed for it is that it is a sealed unit which can be quickly removed for rebuilding or replacement.

The designer reports that the chassis will be of tubular steel construction welded in much the same fashion that aircraft fuselages are built. Light metals or plastics would be used for the body, which would be constructed by use of new processes

(Continued on page 140)

#### Classified Advertisements

Additional Lines Wanted:

DORING & EYER SALES & ENGINEER-ING CO., 404 Reliance Bldg., 216 East 10th St., Kansas City 6, Missouri. Missouri, Kansas, Nebraska and Iowa. Principal Lines: Automotive and Hardware.

REBUILT CONNECTING RODS — ALLIED MIRRO-MATIC FORD V-8 connecting rod service. A new process, a better product, better service. Precision mirror finish bearing surface; accuracy, exact size to standard; perfect pin fit to standard; each rod bears a new rod guarantee. Ship us your V-8 rods, we rebuild your rods only, we do not exchange rods. Service 10 to 20 days. Special prices to Motor Rebuilders. ALLIED MANUFACTURING CO., 2109 O STREET, LINCOLN, NEBR.

#### WANTED

SALESMEN—Calling on auto accessories dealers, chains, jobbers to sell all-wool washing and polishing mitts. Attractive commissions. Several exclusive territories still available. Write Box No. 29, Motor Age, Chestnut & 56th Sts., Phila. 39, Pa.



Pyrene Manufacturing Company



Smash-Proof

CREEPERS

Sold by all leading jobbers
HULBERT MANUFACTURING CO.
Ashtabula, O.

# REBUILT GENERATORS and STARTERS also REWOUND ARMATURES

For All Popular Make Cars

IMMEDIATE DELIVERY

We stock only original units. All generators rebuilt with rewound armatures.

Write for Price List D.D.

HASCO PRODUCTS, INC.
131 Park Ave. Lyndhurst, New Jersey

## MAKE PROFITS From Automobile Aerials



Ask your jobber for the Philson Line of Auto Aerials. A complete line of every type and style. Manufactured by the Pioneers in Auto antennas.

PHILSON MFG. CO., INC.

NEW! BLOWOUT-PROOF RUBBER RIVETS SAVE TIRES

SPEAKER Rubber Rivets seal nail holes and small breaks. A quick pull on the wire needle makes a repair that outlast the tire. Prevent fabric rot and blowouts with Rubber Rivets. Get some from your jobber today.



J. W. SPEAKER CORP.
Milwaukee 12, Wis.

# MODEL 80 WET TYPE VALVE REFACER DUPLICATES ORIGINAL FACTORY PRECISION AND FINISH

Special type COLLET holds valve stem securely without brinelling or marking stem. Ranges 9/32" to 3/4".

FULL BALL BEARING SPINDLE insures smoother operation longer.

MOTOR 1/3 horsepower.

WET GRINDING prevents surface burning and stem growth,

Handles valves to 4" head diameter.

MICROMETER
WORKHEAD
FEED CONTROL.
Operator knows
exact amount of
metal being
removed.

MOTOR SWITCH conveniently located.

Designed and built to provide years of troublefree performance with precision and finish equalled only in factory production. TRANSVERSE or CROSS-FEED LEVER Locks Wheel to desired position when grinding. DOVETAIL TYPE
WAYS accurately
machined. Springloaded bronze gibs
compensate for wear
and maintain constantly even pressure.
Base doweled for
various angle settings

V-BELT DRIVE
for smooth power;
Quick acting,
CLUTCH for
stopping Workhead
without stopping
Motor.

Consult your HALL Jobber or write the factory for complete information.

THE HALL MANUFACTURING COMPANY . TOLEDO 7, OHIO

FEBRUARY, 1946

GE

When writing to advertisers please mention Motor Age

189









#### **New Rear Engine Car**

(Continued from page 138)

which permit forming of large shapes without requiring expensive dies. The driver's seat is said to be in the center for better vision, with swinging single seats on either side.

While principals in the deal, other than Tucker, have not been announced at this writing, they are reported to include a well-known Chi-. cago millionaire, a former production head for a large Detroit automotive manufacturer, and a truck sales manager from another automotive company. It should be remembered, of course, that all plans so far announced are tentative both as to structure of the company and design of the product. Additional and detailed information will not be available until more phases of the organization have been shaken down.

#### Kaiser-Frazer Extend Lease on Willow Run

Kaiser-Frazer Corp. has signed an agreement with the Reconstruction Finance Corp. under which the automobile company may continue occupancy of the huge Willow Run plant for 10 years, according to a joint statement issued by Henry J. Kaiser, chairman, and Joseph W. Frazer, president. The term of the original lease ran from November 1, 1945, to December 31, 1950.

Under the new agreement, which became effective when the corporation and the R.F.C. affixed signatures recently, the term of the original lease was extended six months through June 30, 1951. At the same time Kaiser-Frazer Corporation was granted an option to renew the lease for an additional four-and-one-half years.

If the company exercises the option, prior to December 31, 1949, the company then will be entitled to continue occupancy of the plant until December 31, 1955.

Rental of the plant is on a graduated scale for the first two years, the company paying \$500,000 for 1946, \$850,000 for 1947 and \$1,200,000 for each year thereafter. Rental will be \$1,200,000 annually for the additional years provided under the option.

#### New Diamond Patch-Rite Delux Patch

Bumping caused by tire casing patches is reduced considerably by the shape of the new Diamond Patch-Rite Delux patch manufactured by the Buxbaum Co., Canton, Ohio. The patch is designed in a modified cone shape, increasing in thickness from the edges toward the center. The resulting center point absorbs the road impact first, thus reducing bumping. Made to fit all injuries, the Diamond Patch-Rite Delux patch can be vulcanized for a permanent repair or used as a highly successful cold patch.





The complete line that completely satisfies

The Fitzgerald Manufacturing Company

Torrington, Conn.



#### CAMPBELL

Lug-Reinforced
TIRE CHAINS

THE CHAIN WITH THE SAW-TOOTH GRIP
Greater Mileage Greater Safety
INTERNATIONAL CHAIN & MFG. CO., YORK, PA.

Since 1897
UNITED STATES

have never swerved from their original standards of QUALITY AND SERVICE

**ELECTRICAL TOOLS** 

THE UNITED STATES ELECTRICAL TOOL CO.

CINCINNATI, OHIO





# FASTER AND BETTER SERVICE

Speed up your service with Hansen Automotive Airline equipment and you step up your business... one follows the other. Service is the backbone of today's service station business, it holds the old customers and brings in the new ones which all adds up to bigger and better business all along the line.

The HANSEN AIR HOSE COUPLING is extensively used around service stations, because of its simplicity, ease of operation and long life without leaking. All parts are fully protected, consequently it can be used outdoors as well as indoors. Push plug into socket it is connected, air is automatically turned on, slide sleeve back it is disconnected, air is automatically turned off. Full swivel action prevents kinking of hose.

HANSEN JET OILER is compact, well balanced, easy to handle and is manually operated, it projects a solid jet of light or penetrating oil when plunger is depressed. All pump parts are enclosed in the handle, fully protected. Oil container has one quart capacity.

HANSEN SANDBLAST CLEANER is an ideal unit for removing old paint, rust, carbon, etc. and for cleaning parts for welding and soldering. Container holds about three pounds of sand. Furnished with 1/4" hose stem for airline connection. • • • Send in for free automotive catalog.

THE HANSEN MFG. CO.

1786 E. 27th STREET . CLEVELAND 14, OHIO



WITH

#### MASTER RECAMS

WASTER RECAMS are individually designed for all late medel cars; easily installed without removing pistons. The prefitable way to Stop Plotee Stop, Oil Pumpius and Motor Noise.



50° EACH

REGULAR DISCOUNTS TO JOBBERS AND DEALERS

WHERRY ENGINEERING COMPANY 3227-29 Morganford Rd., ST. LOUIS 16, MO.







#### Porous-Chrome Piston Rings Now Available

No other cause of engine-part failure is responsible for so much downtime among truck and bus fleets as is excessive piston ring and cylinder wear. For years, engineers and metallurgists have attempted to overcome this trouble by improvements in materials and designs.

The most recent, and one of the most significant steps toward a solution of this problem is represented in the application of porous chrome to

piston rings.

American Hammered Porous-Chrome Piston Rings, embodying the Van der Horst process, are available to truck and bus operators after having been proved in over seven million miles of road tests. These tests were made under all conditions of service in various kinds of operations: inter-city bus operation; long distance hauling; urban bus and truck operations; doorto-door deliveries of bread and milk—an actual cross section of bus and truck service.

The engines used in the tests ranged in bore from 3 1/16 in. to 5 in., using 3, 4, 5 and 6 ring pistons; were both gasoline and diesel; and included V type, L head, overhead, two cycle and four cycle, vertical and horizontal designs.

#### Ford Produces 80,000 Trucks During 1945

The Ford Motor Co. produced 80,000 light and medium trucks during 1945, J. R. Davis, director of sales and advertising, announced.

The Ford Motor Co. now produces a light truck of 114-inch wheelbase, and ton-and-a-half vehicles of 134 and 158-inch wheel-bases, respectively. Also in production are 158 and 194-inch wheel-base school bus chassis and a 148½-inch wheel-base transit bus.

Improvements in the Ford trucks now being produced result from wartime experiences and all tend to improve performance and accessibility for service. The heavy-duty Ford V-8 truck engine, which develops 100 horsepower at 3800 r.p.m., is proving extremely popular with truck owners. New long-life tri-alloy connecting rod bearings are outstanding features of the engine. Bearing life has been increased by approximately 250 per cent as a result of the installation.

Engine lubrication has been improved by increasing oil volume and pressure. Valve seats cool better because coolant has been increased at that point.

Many synthetic rubber parts appear in the new Ford trucks because they resist grease and general deterioration more effectively than the natural product. As a result of war-time experience the company will not resume use of natural rubber for many of these parts.



Bonney Forge & Tool Works Allentown, Pa.





Ask your Shurhit jobber or write us for details on General Ignition Assortments of fast-moving parts... Contact Points... Condensers ... Rotors ... Caps ... Calls. Switches.

SHURHIT PRODUCTS, INC.

Waukegan, III.





Muck and scale quickly removed and brake cylinder polished to a mirror finish in a few seconds. Eliminates wasteful outside trips Does the entire job in your own shop.
\$3.25 FROM YOUR JOBBER

THE MYLAND MANUFACTURING COMPANY 818 John Street Portsmouth, Ohio







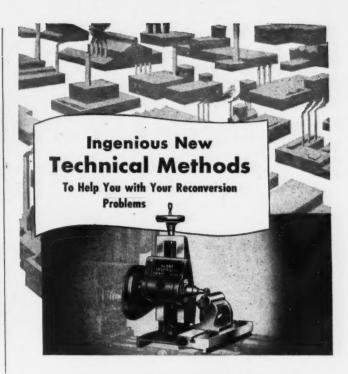
Electrical connections made by clipping old wires and connecting with wires of unit. Entire adapter unit fits securely into old shell, without rewiring.



Millions of old cars will have to carry on for years before new cars can replace them. Safe operation requires the modernization of their headlamps. PATHFINDER Adapter Units enable you to convert pre-1940 headlamps into efficient, low cost "Sealed Beam" lights.

WRITE FOR CATALOG

AUTO LAMP MFG. CO.
2901-17 Indiana Avenue Chicago 16, Illinois



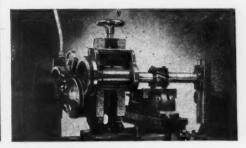
# New Unit Makes Milling Machine Out of Lathe in 3 Minutes!

The Globe Miller, a unit quickly attached to a standard lathe, performs the same operations as a costly milling machine. Installed in 3 minutes or less, the Globe Miller operates almost identically to a standard milling machine. All controls are simple, highly accurate—and the miller is designed to utilize all speeds and feeds of the lathe.

It is accurate, durable and highly versatile. With minor adjustments and accessories, the miller will face castings; cut slots, keyways, and gears; perform slitting operations, etc. Quality materials and rugged construction enable it to stand the hardest use. It costs but a fraction as much as a standard miller. Its compact design makes storage possible underneath the lathe. Proved performance in wartime production, assures dependable service.

Performance has also proved that chewing gum helps you on the job—by seeming to make work go easier, time go faster. Today, you'll see good chewing gum on the market. But a shortage still exists. Wrigley's Spearmint Gum is taking this space for your information, and for now, we'd like to suggest that you use any good available brand. Remember: It's the chewing that's good for you.

You can get complete information from Globe Products Mfg. Co., 3380 Robertson Boulevard Los Angeles 34, California



AA-56

## Chilton ANNOUNCES

# The NEW 1946 FLAT RATE and SERVICE MANUAL

• Completely New • Bigger • Contains the Greatest Amount of Essential Data Ever Put Into One Book

## NOW SELLING on advance of delivery

Your Chilton Man will call on you to tell you all about the forthcoming 17th Edition. The Manual cannot be printed until we are able to flat rate the new cars, and to supply their service procedure, but it will pay you to place your order with your Chilton Man when he calls, so you may receive one of the first copies off press.



This is the great, new 1946 postwar book that Chilton promised you it would produce, now carrying a new name—The Motor Age Flat Rate and Service Manual.

It will supply your every possible need for Flat Rate Labor Charges, Material Charges, Parts Prices, Quick Reference Tune-Up and Short Cuts Data, and How-To-Do-It procedure on trouble-shooting, major and minor overhauls for ten years, from 1937 to 1946 inclusive.

It furnishes all information on the 1946 cars.

It supplies motor car and truck flat rates and truck and tractor tune-up.

The Quick Reference Tune-up and Short Cuts Data has been replaced at the bottom of each flat rate page. Over 450 parts numbers and prices for each make and model.

Chilton time-studied labor prices will again enable you to make more money, but factory time allowances are also supplied for reference purposes.

The increased size of the pages enable us to furnish more parts information, more flat rate operations, more tune-up and short cut footnotes, and more service procedure than has ever appeared before in any Manual.

As always, parts prices, labor charges and materials and flat rate data are all together for each make on two pages facing, providing the Chilton easy-to-use system, and the familiar Chilton Index of Operations will seem to you like old times when you use it.

Space does not permit describing this great, new Manual. You will have to see the big service section and the many exploded views, cross-sectional illustrations, and action pictures it provides.

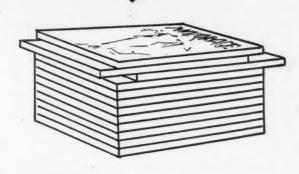
The Greatest Manual Chilton Has Ever Published

#### Here's what you get for just \$10

# THE 1946 MOTOR AGE FLAT RATE AND SERVICE MANUAL

12 ISSUES OF MOTOR AGE MAGAZINE





PLUS the brand-new Motor Age Short Cuts, Shop Kinks and Interchangeable Parts List Handbook, which gives you the latest time and labor-saving shop methods on the trickiest jobs, and the most complete list of parts interchangeability ever produced—over 80,000 listings.

#### RETURN THIS COUPON TODAY. Be at the top of the Shipping List.

Guarantee—This order will be entered as of the date on which it was received, and your copy of The Motor Age Flat Rate and Service Manual will be sent, immediately after the book is printed as per the date on which the order was received.

## CHILTON COMPANY, CHESTNUT & 56th STS., PHILADELPHIA 39, PA.

I am attaching .....check; .....money order; .....cash; for Ten Dollars (\$10) to pay for a year's subscription to Motor Age (12 issues), cost \$2, and a copy of the 1946 Chilton's Motor Age Flat Rate and Service Manual, cost \$8.

If you are already a subscriber to Motor Age, your present subscription will be extended 12 months beyond its present expiration date. I understand that you will immediately start my subscription to Motor Age Magazine, and that you will send my copy of the Motor Age Flat Rate and Service Manual as soon as it comes off press, and in the order where my name appears in rotation on your shipping list. I understand that I will also receive a copy of The Motor Age Maintenance Manual (a Handbook) entirely free of charge.

State .....

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Thanks for filling in the information below so you may be listed correctly in The Chilton Automotive Trade List.

Please check:

Car Dealer .....

Minor Repairs Only .....

Jobber ......

Name and address of company with whom associated

As an individual subscriber, you can classify me as:

Proprietor.... Manager....
Service Manager.... Foreman ....

Mechanic.... Other position....

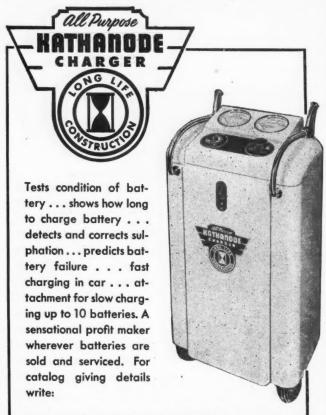
# Here is the NEW WELDER Useful in ANY Repair Shop

"KING" Arc Welders are giving satisfactory service in thousands of repair shops in this and many foreign countries. The new "KING" Arc Welder Type W-7 is streamlined and important features have been added. Materials ranging from 22 gauge to 3/4" can be welded, using coated welding rods from 1/16" to 1/4". It has a capacity of 250 Amperes with 18 heat stages ranging from 15 to 250. A plug-in arrangement for each stage permits easy and quick changes without the use of switches.



Ask Your Jobber or Write Us

# The ELECTRIC HEAT CONTROL Co. 9123 INMAN AVENUE . CLEVELAND 5, OHIO GOOD "KING" PRODUCTS SINCE 1914



#### KATHANODE CORPORATION

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Don't take our word for it. Ask the man who mops them—floors, grease pits, lift areas. He knows what a superior floor-cleaning material Oakite Penetrant is...how this fast-working solution can pinch-hit all over the lot... for regular floor maintenance, for removing tough deposits on long-neglected floors, for machine washing or scrubbing, for wood, tile, or concrete surfaces!

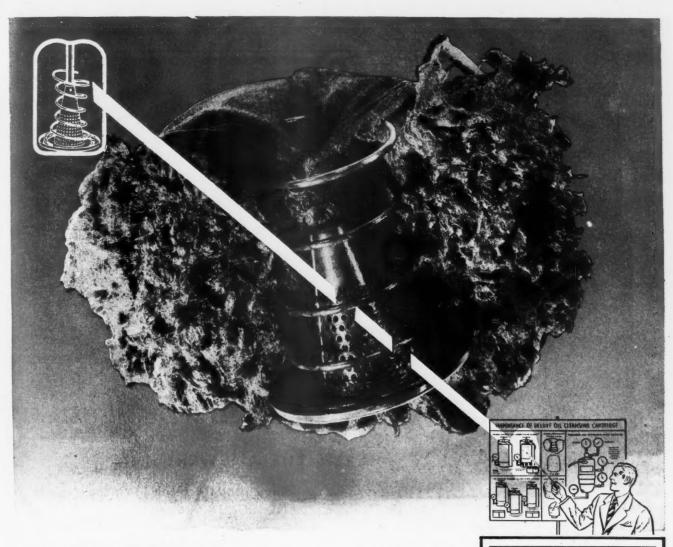
In varying solutions, Oakite Penetrant is thorough and efficient in each of these jobs. It is simple to apply, safe on concrete surfaces. Its strong emulsifying action literally tears loose heavy grease and dirt deposits. And its complete solubility means maximum cleaning value for every

ounce you buy.

Write TODAY for free details. Ask us, too, about Oakite Composition No. 71, the new DRY, granular material which can be spread around on floors and working areas to absorb oil, grease and water. It provides all-day underfoot safety at extremely low cost. When completely soaked, particles are simply swept away. Prices, free data available without obligation.

OAKITE PRODUCTS, INC., 24C Thames St., NEW YORK 6, N. Y.
Technical Service Representatives Conveniently Located in All Principal
Cities of the United States and Canada

OAKITE Specialized CLEANING
MATERIALS: METHODS: SERVICE: FOR EVERY CLEANING REQUIREMENT



# WHERE OPERATION IS A SCIENCE ...THE DEMAND IS FOR DELUXE

It is no accident that all 15 of the 15 winners of the latest National Bus Transportation Awards for Maintenance Efficiency operate DeLuxe-equipped buses . . . . just as profit-earning truck and bus fleets and individual units are doing across America. These operators know sludge destroys engines. And the logic of DeLuxe design which appeals to them appeals to any man who wants an engine to last, and to operate economically.

DeLuxe cone-and-spring construction is an example: the spring keeps the filter material from packing down and becoming inefficient . . . the cone drops sludge into the sump, instead of letting it clog the cartridge . . . the two together make

oil travel the L-O-N-G way, to remove contaminants BEFORE they form clogging and damaging sludge.

You can't go wrong following the lead of the leaders! Standardize on DeLuxe, keep up the good work with genuine cone-and-spring-built DeLuxe cartridges!... DeLuxe Products Corp., 1404 Lake St., La Porte, Indiana.

#### You're Invited!

 Destructive sludge is exposed, defeated at these DIFFERENT Oil Clinics!

Attend a DeLuxe Oil Clinic. Get your questions answered about the new oils, and about sludge-today's most potent, and neglected, engine menace and gasand-oil waster! Learn about DeLuxe! Get nearest Clinic date from your Jobber!



Use genuine DeLuxe cone-and-spring-built cartridge refills. The "Cotton Wad" kind may look okay, but they don't stay that way!

DOES MORE THAN STRAIN OIL... MORE THAN FILTER OIL ACTUALLY CLEANSES OIL

FEBRUARY, 1946

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# Will YOU or Your Competitor Get the NEW Tire Business?

#### HERE'S THE ANSWER!

## Better Battery Cables by BOWES



Another outstanding item in the Bowes line of automotive products. You'll make lasting friends with Bowes Battery Cables because the terminals are

#### CORRODELESS

and because they have several other outstanding features.

Bowes national advertising on tire repairs, battery cables and the many other items in the Bowes automotive line brings many new, lasting customers to Bowes Dealers. The man who is doing a good tire repair job today is going to get his share . . . AND MORE . . . of new tire repair volume tomorrow. A good tire repair job makes friends, especially now when good tire repairing is so essential to the customer who can't get new tires. Doesn't it follow that when he does get new tires, he will naturally come to YOU . . . his friend . . . a man in whom he has confidence? You can build tomorrow's volume in new tire business by doing a good repair job TODAY!

## You'll Do BETTER Tire Repairing with Bowes "Seal Fast" Materials and Methods

Let us help you build a *profitable* tire repair business. Bowes tire repair materials, equipment and Training by our factory-trained experts will do it. We don't just dump some material on your floor... NO SIR... you can't buy Bowes equipment and materials unless you agree to let our experts train you and your men in their proper use.

And remember, our national advertising sets up Bowes "Seal Fast" Dealers as SAFE TIRE REPAIR EXPERTS and brings in new business. Write today if you would like our distributor to call and explain the Bowes proposition. There's no obligation.



TIRE SAVING SYSTEM

BOWES "SEAL FAST" CORPORATION, INDIANAPOLIS 7. INDIANA

#### "DUCO"-THE ORIGINAL PYROXYLIN FINISH FOR AUTOMOBILES



## Step by Step— TOUCHING UP OLD FINISHES

- Thoroughly clean all areas to be painted with PREP-SOL. Feather edge all broken spots and sand bright any rusty metal.
- Spot spray bare areas with Hi-Speed PX Primer-Surfacer, allowing ½ hour for last coat to dry before sanding.
- Rub around patches with "DUCO"
  Rubbing Compound to remove
  scratches and overspray. Seal surface with PYRA-PREP, allowing
  at least ½ hour for drying.
- Spray several coats of "DUCO," extending each coat a little further and increasing proportion of thinner with each succeeding coat. Level off patch with a final mist coat of rich thinner.
  - After at least 4 hours' drying rub with "DUCO" Rubbing Compound. Dampen pad with PREP-SOL to speed compounding.

#### NO GUESSING, NO CUSTOMER COMPLAINTS

When you order a "DUCO" Finish to match a standard car color, you know in advance you'll get a perfect job. For each batch of "DUCO" must match exactly the established standard for that particular color before it leaves the testing laboratory. Factory matching saves you time, trouble and money. It makes satisfied customers.

Since 1924, when "DUCO" revolutionized the automobile industry by making production line finishing possible, it has gained public acclaim as the top-ranking automotive finish. When you identify yourself as a "DUCO" Paint Shop, you associate yourself with a name that will bring in plenty of new and repeat business.

Today, more cars need repaint and touch-up work than ever before. Get your share of these profits by making "DUCO" your silent salesman. Order a supply of the most popular "DUCO" colors from your Du Pont jobber today.

E. I. du Pont de Nemours & Co. (Inc.), Finishes Division, Refinish Sales, Wilmington 98, Delaware.



GE



K-W Stan-Test products move fast because dealers, repair-men and motorists find them stand-out values for these two important reasons: 1, They are top-quality parts that deliver according to specifications.

2. They are designed for ease of installation.

A QUALITY REPLACEMENT



#### **VOLTAGE REGULATOR**

- \* Replacements for FORD, DELCO-REMY, AUTO-LITE
- \* All are 3-unit type—VOLTAGE REGULATOR, CURRENT REGULATOR, CIRCUIT BREAKER
- \* Trouble-free operation
- \* Easy to install—NO BRACKETS OR ADAPTERS NECESSARY.

Stan-Test regulators control voltage and amperage—insure proper charging rate. Magnetic temperature compensator controls voltage thru all temperatures—requires no adjustment. Replaces original equipment using the same mounting holes and connectors. Plan now to carry a complete line!

A "NECESSARY" ACCESSORY



#### **DUAL HEADLITE RELAY**

- \* Increases illumination for all cars and trucks.
- \* Assures positive, dependable action makes night driving far safer.
- \* Enclosed in air-tight, water-tight case.
- \* Packed in sturdy, colorful box—complete with instructions.

Increased speed in motor vehicles puts new stress on safety features. The "K-W" Dual Headlite Relay gives increased illumination for the clearest, fastest vision possible. Watertight case makes it possible to install it where it will be most effective. Stock up now on this "necessary" accessory.

K-W STAN-TEST OFFERS YOU A
QUALITY LINE OF REPLACEMENT PARTS
Backed by a tradition of quality!

THE K-W

STAN-TEST CORPORATION

BLACKSTONE MANUFACTURING CO. - MORGAN AND QUINCY STS., CHICAGO 1, ILL., U. S. A.



GRAFILD "PF" PRESCRIBED FRICTION SETS
The correct friction requirements for each
particular brake. Selected from highest
quality materials, through laboratory and
road tests. "Prescribed" or "Engineered
for each type brake" to give correct braking performance, greater satisfaction and
longer service. Instruction chart in each
box contains directions for installation.



Grafild DeLuxe Woven—A super-quality, dense, high friction brake lining for passenger cars, trucks and industrial applications where greater holding power and maximum resistance to grit, water and oil are required.



Grafild Royal Grid Molded (Rolls) — A top, quality molded lining designed for internal brakes. Responds to lighter pedal pressure without grab or excessive fading. Quiet and long-lived.



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 Send for descriptive catalog showing full details of the Grafild line with car, truck, bus and industrial equipment aplications.

# WORLD BESTOS CORP.

PATERSON . NEW JERSEY

AN OPPORTUNITY FOR PROFIT IN EVERY SET



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AND



That Acme thread will take 30 tons pressure-3 times the usual pressure.

These LANAGAN presses made their first appearance with the armed forces. They were made for Herculean work, such as pulling generator and starter armatures away from end-plates, and pressing new bearings into end-plates-rugged assignments . . . but they haven't been fazed yet. In fact, they're the strongest puller-presses made. With 3 bearing drifts, accommodating 7 different sizes, they are truly universal. Dimensions: H 311/2", W 151/2", D 19". Equipped with convenient off-and-on plate for electric bearings, if desired. See your jobber, or write direct to us.



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PRECISION AUTOMOTIVE TESTING EQUIPMENT

# AND UNDERCUT

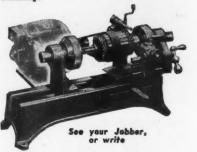
#### A SHOP NECESSITY

This marvelous machine is vitally necessary to take care of the flood of work that

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With the TRUCUT you can handle more jobs, do the work faster, more accurately and more profitably.

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FOR FORD - MERCURY CHEV. & PLYMOUTH

Thoroughly tested through millions of miles of riding on hundreds of thousands of Ford and Chevrolet cars. Easily and quickly installed . . a feature that appeals to all mechanics.





Other Fast Moving 9tems Ready for Delivery WATER PUMPS AND KITS
SOLENDID STARTER UNIT
SOLENDID STARTER UNIT
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KING BOLT SETS
SHOCK LINKS
SPECIAL SERVICE
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OUTSTANDING FEATURES

Permits old cars to have that newer, quieter ride.

Completely cushions and insulates frame from axle.

Replace old, o b s o l e t e shackles.

No lubrication required.

Silent in operation.

Easily and Quickly installed.

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The rubber bushings are molded to correct size and properly cured for easy, perfect fit and long life. Write for Catalog Sheet.

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AUTOMOTIVE MAN'F'G. Co.,INC.



AGE



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For Today's Vital Ignition Service



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range meter — precisie
Ith seales of 0-60 amps

Ignition systems using voltage regulators demand an accurate Voltmeter to test opening and closing points motor manufacturers recommend it. Here's the HOYT GT-4 especially Here's the HOYT GT-4 especially designed for this service. It's small enough to slip in your pocket, and built like a fine watch—extremely precise, moving coil movement with jewel bearings! Yet, rugged enough to take the bumps in shop use. This low-cost, thoroughly practical Hoyt Instrument will soon be available again—plan to have it ready for profitable ignition services. Ask for your copy of our new Catalog.



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Bolt turned

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for all Ford passenger cars

Gets out the most stubborn King-Pins . . . quickly, easily, and without hammering.

-80

FOB Birmingham Shipping weight 5 lbs.

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#### SOUTH BEND PRECISION LATHES



FREE CATALOG

Write today for this South Bend Lathe Catalog. State size of lathe (9", 10", 13", 14½", or 16" swing) in which you are interested.

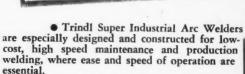
Here is essential service equipment that can quickly pay for itself in your shop. With it you can re-machine worn or broken parts that have been repaired or built up by welding or metal spraying, refinish valves and commutators, finish pistons, make bearings and bushings, machine shafts, sharpen reamers and cutters, and rework and fit parts.

A South Bend Lathe can save its cost by preventing costly breakcowns-by saving days of delay-by keeping cars and trucks on the road.



Lathe Builders Since 1906 SOUTH BEND LATHE WORKS
450 EAST MADISON ST., SOUTH BEND 22, INDIANA





"Job-Tested" Trindl Welders-acclaimed for superior performance, ruggedness, dependability, and economical operation wherever used — are rolling up impressive production records.

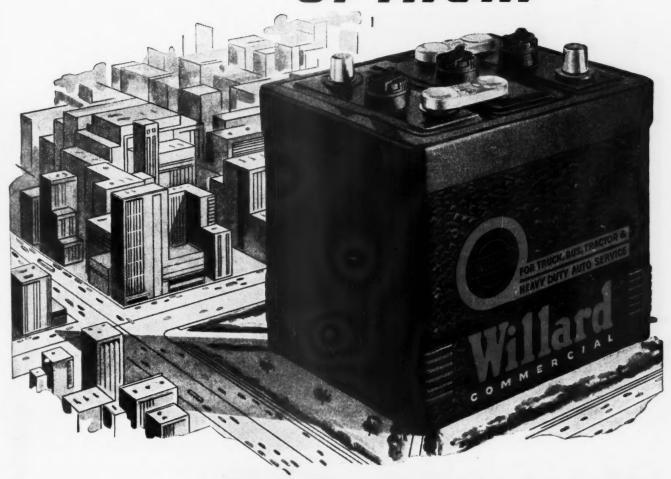
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Step up production schedules twenty to forty percent—with an easy-to-operate TRINDL SUPER INDUSTRIAL ARC WELDER . . . also to save both time and money there are TRINDL welding supplies, accessories, and electrodes. Write, wire or . . . phone for full details.

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Dependability · Performance · Long Life

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FEBRUARY, 1946

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#### 6 Million Cars -10 Years Old

NLESS the 6 million cars that are 10 years old or older are kept running until production of new cars reaches top speed, watch for a slump in your repair business! So, coddle the "old timers"! Balance their wheels, thereby reducing the vibration that quickly shakes cars to pieces. Takes very little time—and it's a profitable service job.



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for wall chart showing the pounding effect of unbalanced wheels.

WHEEL BALANCING WEIGHTS

the Salary of an Extra Man with a One Man Drives, Tows and Steers Both Cars!

- Attaches to any bumper, center or off center—fits 97% of all cars, including knee-action models.
   Towed car follows perfectly over any road—around curves—cannot swing out in traffic—absolutely safe
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One flip of handle and hub cap is off!
Prevents battering of hub caps and chipping of wheel paint.
Heavy steel—rust proofed—ABSOLUTELY GUARANTEED.
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There was a time when machine tools had to be heavy to be accurate but modern engineering and manufacturing methods have changed that. Today, the fully equipped shop has its big lathes for big work, and SHELDON S-56 Precision Lathes for small parts. With accuracy that will hold the closest tolerances and the stamina to stand up to continuous high speed operation, these smaller, handier, moderate priced lathes are cutting the cost of and increasing the hourly output of small turned parts,





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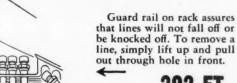
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THE MOST
NEEDED FLEXIBLE
FUEL LINES

in this

IMPERIAL "Broad Coverage"
MERCHANDISER

No. 161-FT Has 30 Lines (Illustrated)
Covers 90% of all jobs.

No. 160-FT Has 15 Lines Covers 82% of all jobs.



Label on rack above each line shows not only catalog number of line, but also cars and models it fits — a big convenience in using and reordering.

292-FT

RACK SIZE

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Replaces Gas Line on Chrysler 8, 1938 Chrysler 1939-42 DeSoto 1937; 1939-42 Dodge 1937-39 Plymouth 1937-42 Plymouth Truck

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Millions of soft, spongy, collapsed or leaky flexible gas and oil lines on cars and trucks will have to be replaced this year. You can handle these urgent service jobs quickly and profitably with an Imperial "Broad Coverage" Flexible Fuel Line Merchandiser.

This Merchandiser contains all the most needed flexible lines—displayed in an attractive, 3-color steel wall rack that offers many special advantages.

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Flexible lines are extra quality — bear the reliable Imperial "Diamond I", your assurance of customer satisfaction.

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# IMPERIAL



THE COMPLETE LINE OF GAS AND OIL LINE PARTS AND TOOLS

















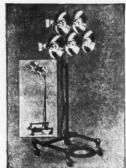
Up On Top! Nursing the "iron horse" . . . that's a job with special responsibility . . . for men with special skill. Like auto mechanics. And we don't mean the fellows who tinker with motors. We mean you who know motors like your own right hand. You get the tough jobs . . . the stiff engines . . . the hard starters . . . the broken down and battered motors. And you're supposed to work the miracles.

That's a mighty trust to put in a man. Don't trade it for pennies. It costs a bit more to buy Blue Streak Ignition Parts, but then you're surer with them . . . surer of their performance . . . surer of your reputation . . . surer

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Nalco Portable Adjustable 5-Light Unit Illustrated

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FAD-A-WAY AUTOMOTIVE

WHEEL BALANCE WEIGHTS

TRUCKS . BUSES . PASS. CARS



PAT. NO.

D-119-321 D-5189

FACTORY

MID-WESTERN AUTO PARTS кокомо INDIANA

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ELIMINATE SANDING and ELBOW GREASE Remove RUST Chemically with METALPREP 79.

• In preparing metal for paint, don't do it the hard way. Use the proven cleaner, METALPREP 79, on your refinishing jobs. It's easy, more effective and thorough, Simply BRUSH ON, STEELWOOL, SCRUB and WIPE OFF. PREWAR FORMULA. Ask your jobber or write for Bulletin 44-5. JOBBERS: Add profit with Metalprep.

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BE SURE THOSE SPRINGS ARE

#### **BALANCED!**

OU can't get top performance out of an over-hauled motor unless the valve springs are at cor-rect tension—and accurately balanced. One weak spring will lower engine efficiency tremendously, causing fuel waste and inviting early repairs. Remember, it's valve ACTION that is critical—and action depends on valve springs.

#### RIMAC SPRING TESTER For Valve & Clutch Springs

Insures satisfactory performance. Used in production, and recommended for service work by leading manufacturers of Automo-bile, Airplane, Truck and Tractor Motors.

Fairly quick deliveries.

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100% PENNSYLVANIA (WOLFS HEAD) P.G.C.O.A. Permit No 6



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And it's your big opportunity in today's growing market. Higher speeds, heavier traffic, older cars call for more and better relining.

Raybestos takes the guesswork out of brake work

—gives you the exact answer to every braking problem. Only Raybestos has all 7 types of brake lining to provide the best braking service for every car. Each type is engineered for a specific purpose. In Raybestos PG sets you get the right combination of the right materials for full-range brake control easy, positive slow-downs...smooth, quick stops.

THE RAYBESTOS DIVISION of Raybestos-Manhattan, Inc., BRIDGEPORT, CONNECTICUT



BRAKE LINING • BRAKE BLOCKS
CLUTCH FACINGS • FAN BELTS • HOSE
for Cars, Trucks, Buses and Tractors
America's Biggest Selling Brake Lining

KEEP OIL FREE

FROM ABRASIVES WITH

# THE OIL FILTER

Purolator has in this filter the greatest development in the history of the oil filter industry



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NEWARK 2, N. J.

Founder and Leader of the

Oil Filter Industry



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Card Deck Helps Explain
Longer Ring Life . . .

Ramco 10-Up's alternating pressure action minimizes cylinder and ring wear by reducing automatically the ring pressure on the cylinder wall on the upstrokes of the piston! Improved, life-prolonging lubrication is thus assured. The resistance to movement, that is set up by the overlapping leaves of Spiro-Seal, helps cause a lag in ring expansion and contraction, as the piston goes up and down in a tapered cylinder. Try pulling a card out of a lightly held deck .. you'll see what we mean ... the overlapping card surfaces set up a similar resistance to movement.



# Higher Pressures on DOWNSTROKE Lower Pressure on UPSTROKE

END oil pumping! END blowby troubles! No worry about achieving both these ENDS when you use Ramco 10-Up. Whether you install them in a re-bored or tapered or out-of-round cylinder...

you can be sure of providing the exactly right wall pressures for the job! That's because Spiro-Seal, the steel ring without end, automatically adjusts its pressures to the requirements of the cylinder!

For all the facts, write Ramsey

Accessories Mfg. Corp., 3718 Forest

Park Blvd., St. Louis, Mo. Factories

at St. Louis, Fruitport, Toronto.

R AGE

REPOWER EVERY Job
Re-Bore of Re-Ring with RAMCO LUP

All-purpose Piston Rings
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#### STEEL-EDGE SET

This Set Consists of

107 8-33 x 3 Deep Comp. 8-33 x 3 Flex. Power

8-3% x 36 OilCutter

8-3% x % Steel-Edge





Cross-section of A-H multiple-piece Steel-Edge Ring

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Those to whom efficient engine performance is the only measure of piston ring value rate American Hammered the "ring leader". They rely on A-H rings in every size . . . of every type . . . for every purpose. They know that A-H sets match any job.

Koppers Company, Inc., American Hammered Piston Ring Division, Baltimore, Maryland

## American Hammered Piston Rings

KOPPERS PRODUCT